# SDMS US EPA REGION V -1

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163093

# SITE ASSESSMENT
# FOR
# INTERNATIONAL HARVESTER/DUTCH BOY SITE
# CHICAGO, COOK COUNTY, ILLINOIS
# TDD: T05-9505-011
# PAN: EIL0607VBA

**Part 1 of 2**

**August 18, 1995**

**Prepared for:**

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**Emergency and Enforcement Response Branch**
**77 West Jackson Boulevard**
**Chicago, Illinois 60604**

Prepared by: Sally J. Jones for J. Sherrard Date: 8/23/95
John Sherrard, TAT Project Manager

Reviewed by: Barbara Critchlow Date: 8/23/95
for M.J. Ripp, TAT QA Reports Manager

Approved by: Date: 8/23/95
Thomas Kouris, TAT Leader

**ecology and environment, inc.**
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

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# 1. INTRODUCTION

On May 10, 1995, the United States Environmental Protection Agency (U.S. EPA) tasked the Ecology and Environment, Inc. (E & E), Technical Assistance Team (TAT) to assist the U.S. EPA On-Scene Coordinator (OSC) Paul Steadman in performing a site assessment (SA) of the International Harvester (IH) site in Chicago, Illinois. TAT was requested under Technical Direction Document (TDD) T05-9505-011 to prepare and implement a Health and Safety Plan; compile background information; conduct a site assessment; perform soil sampling; document on-site activities; and evaluate threats to human health and the environment at the site.

# 2. SITE BACKGROUND

## 2.1 SITE DESCRIPTION

The IH site is a parcel of open land (approximately 21 acres) located at 1015 West 120th Street in a predominantly industrial zone of the Calumet area of southeast Chicago, Cook County, Illinois (Figure 2-1) (41°40'30" N, 87°38'46" W). The West Pullman Branch Elementary School and a residential area are located approximately 625 feet southwest of the IH site. Industrial and warehouse buildings border the IH site to the north and southeast. The former Dutch Boy (Carter-White Lead) facility borders the site to the east (Figure 2-2). The site is located in the northeast quadrant of Section 29 of Township 37 North, Range 14 East.

## 2.2 SITE HISTORY

IH acquired the property in 1902 from the Plano Manufacturing Company, which produced agricultural implements. A number of manufacturing processes were conducted on site during the 81 years that IH operated at this location, including painting, forging, punching, woodworking, machining, heat treating, and on-site power generation. A number of potentially hazardous substances such as solvents, oils, fuels, acids, and asbestos-containing insulation were used in these processes. The IH facility was closed and demolished in 1983.

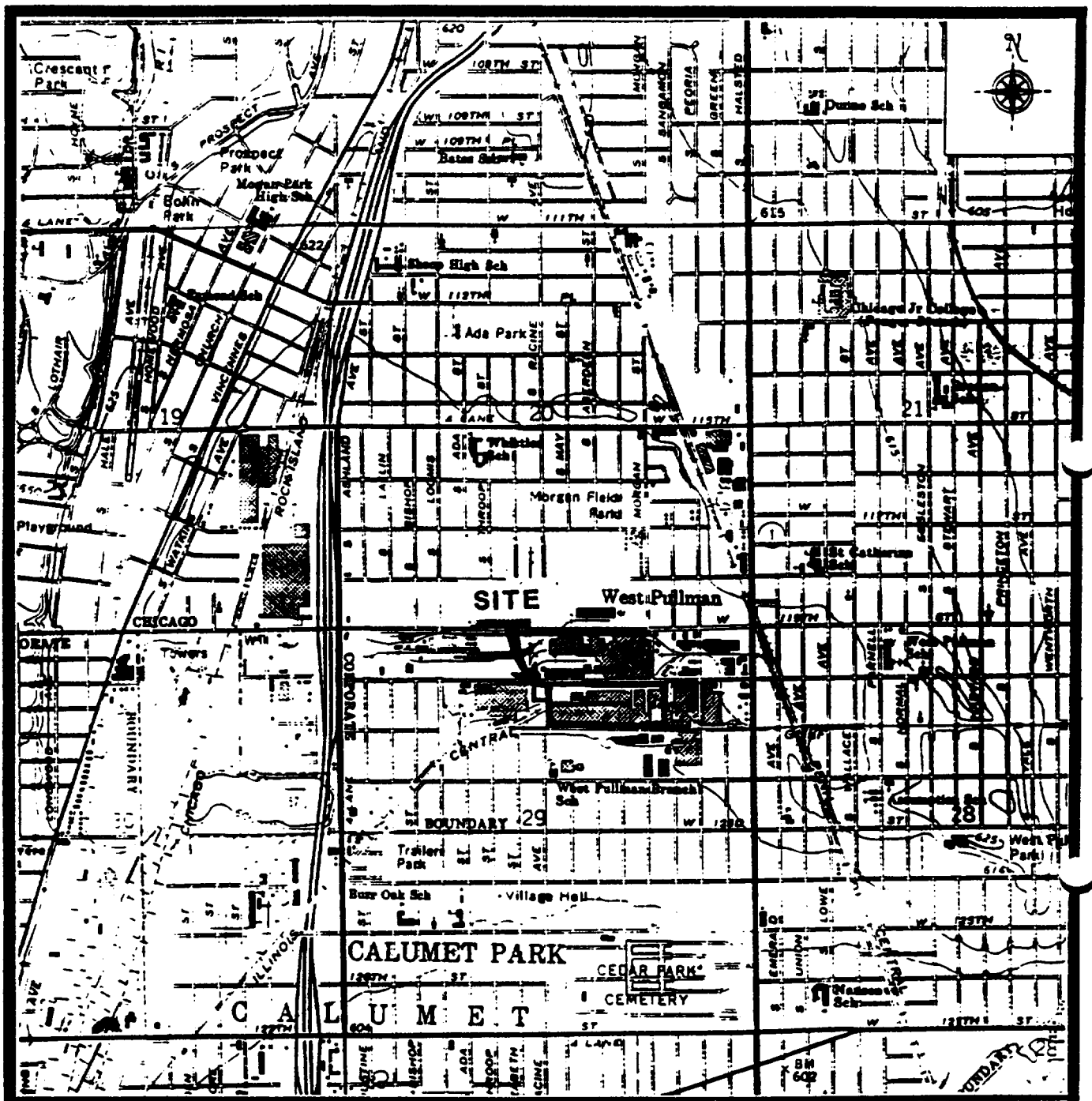
In August 1987, U.S. EPA conducted a site assessment of the IH site. Analysis of soil samples revealed polychlorinated biphenyls (PCBs) to be present at concentrations below 50 parts per million (ppm).

In August 1988, the Illinois Environmental Protection Agency (IEPA) conducted a screening site inspection (SSI) of the IH site. Analysis of soil samples collected on site indicated low levels of polynuclear aromatic hydrocarbons (PAHs) and asbestos.

In June 1991, the U.S. EPA Field Investigation Team (FIT) conducted an off-site reconnaissance inspection of the IH site. FIT documented hydrologic surface and groundwater data

and found demolition debris at the site.

In August 1993, TAT conducted a site assessment under TDD T05-9304-010 at the IH site. Low levels of asbestos and PAH-contaminated soil were found on site.

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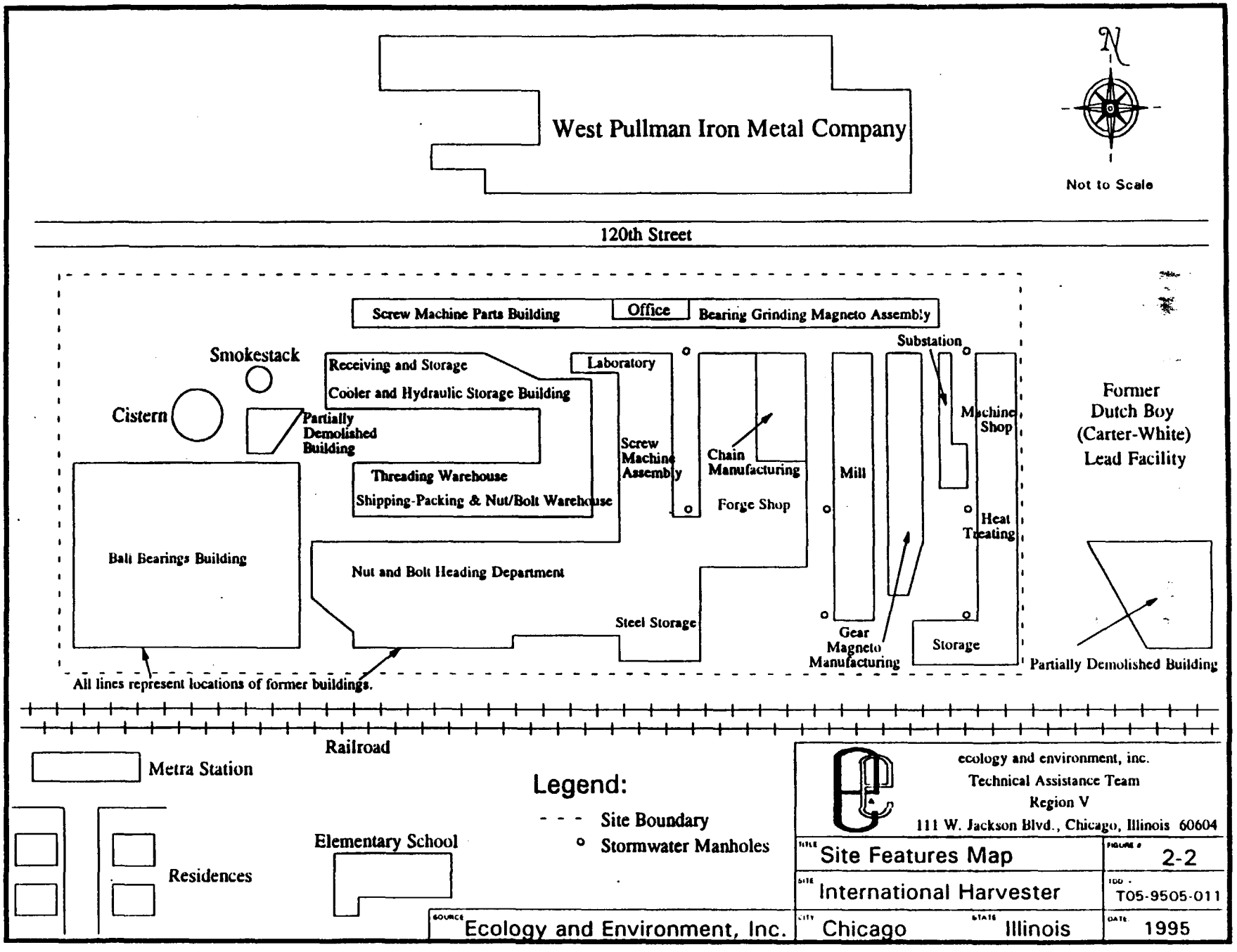
Region V
111 W. Jackson Blvd., Chicago, Illinois 60604

| | |
|---|---|
| Site Location Map | 2-1 |
| International Harvester | T05-9505-011 |
| Chicago / Illinois | 1:24,000 |
| USGS 7.5 Minute Series (Topographic) Quadrangle: Blue Island, IL | 1963 / 1973 |


West Pullman Iron Metal Company
N
Not to Scale
120th Street
Screw Machine Parts Building
Office
Bearing Grinding Magneto Assembly
Smokestack
Receiving and Storage
Laboratory
Substation
Cistern
Cooler and Hydraulic Storage Building
Partially Demolished Building
Screw Machine Assembly
Chain Manufacturing
Machine Shop
Former Dutch Boy (Carter-White) Lead Facility
Threading Warehouse
Shipping-Packing & Nut/Bolt Warehouse
Forge Shop
Mill
Heat Treating
Ball Bearings Building
Nut and Bolt Heading Department
Steel Storage
Gear Magneto Manufacturing
Storage
Partially Demolished Building
All lines represent locations of former buildings.
Railroad
Metra Station
Residences
Elementary School
Legend:
Site Boundary
Stormwater Manholes
ecology and environment, inc.
Technical Assistance Team
Region V
111 W. Jackson Blvd., Chicago, Illinois 60604
TITLE Site Features Map
FIGURE # 2-2
SITE International Harvester
TDD T05-9505-011
SOURCE Ecology and Environment, Inc.
CITY Chicago
STATE Illinois
DATE 1995

## 3. SITE ASSESSMENT

On June 1, 1995, at 1000 hours, TAT members John Sherrard and Patrick Zwilling met with OSC Steadman and U.S. EPA Response Section #3 Chief Frank Rollins at the IH site.

At 1005 hours, U.S. EPA and TAT traveled south of the IH site to 12101 Elizabeth Street, the residence of Abbas Hassain, a member of the Community Economic Revitalization (CER) group. Sarah Perrin, another CER member, was also present at the residence to discuss the site.

At 1020 hours, U.S. EPA, TAT, and the CER members visited on-site and off-site areas of concern. The main concern that residents have is rain washing contaminants from the IH site onto residential and public property. One area visited was located to the east of the West Pullman Branch Elementary School and to the south of the railroad tracks, along which were noted several oily stains. Ms. Perrin stated that she has observed this stained area growing over the years.

An area of concern to Mr. Hassain was on the IH property. Several open pits full of water were observed that present a significant physical hazard. Ms. Perrin showed U.S. EPA an open pit with a large tank (approximately 10 feet in diameter) containing water. An oily sheen was visible on the surface of the water. Ms. Perrin also stated that several areas around the site have piles of tires which at times are burned. Several open manholes were also seen on the IH property, which present a significant physical hazard.

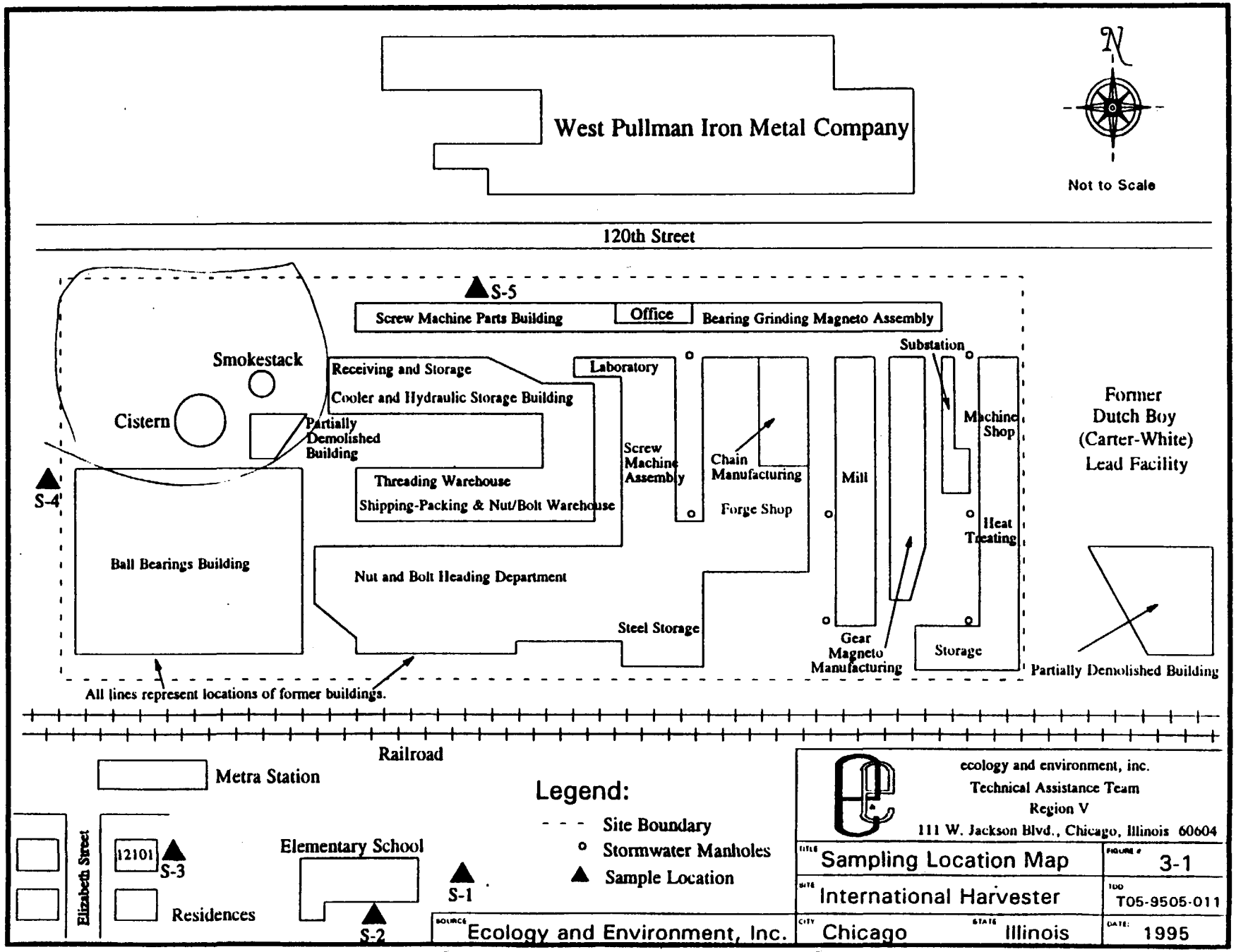
Ms. Perrin showed U.S. EPA a low-lying area at the south end of the IH site that runs west along the railroad tracks. The area around the tracks appeared to be oil-stained. U.S. EPA asked whether the area ever fills with water. Ms. Perrin stated that it did. U.S. EPA then asked whether the area ever flooded over the railroad tracks onto the residential property. Ms. Perrin stated that it did not. Based on this information, it is assumed that rainwater runoff does not migrate off site to the south due to the elevated railroad grade. This fact was also mentioned in previous inspection reports prepared by the city and state.

At 1200 hours, TAT prepared to conduct soil sampling while U.S. EPA determined sampling

locations.

At 1220 hours, TAT arrived at the West Pullman Branch Elementary School. TAT collected surface soil sample S-1 east of basketball court on east side of the school (northeast corner of court). Three 8-ounce jars were filled using a disposable plastic trowel. At 1230 hours, TAT collected surface soil sample S-2 near the school playground and tennis courts. Three 8-ounce jars were filled using a disposable plastic trowel. At 1250 hours, TAT collected 6-inch-deep soil sample S-3 in the backyard of Mr. Hassain's residence at 12101 South Elizabeth Street. Three 8-ounce jars were filled using a disposable plastic trowel. Mr. Hassain was present during sampling. At 1300 hours, TAT arrived at the west end of the IH site to collect soil sample S-4. The sample was collected at a depth of approximately 6 inches. The location of the sample was approximately 8 feet west of the concrete pad and approximately 200 feet south of 120th Street. Three 8-ounce jars were filled using a disposable plastic trowel. At 1315 hours, TAT collected surface soil sample S-5 at the north end of IH site, approximately 15 feet south of 120th Street in a drive-in area. Three 8-ounce jars were filled using a disposable plastic trowel.

At 1320 hours, TAT completed soil sampling activities and departed from the site. See Figure 3-1 for sampling locations. TAT photodocumented all sampling events and locations (Appendix A). All sampling was conducted according to E & E standard operating procedures.


West Pullman Iron Metal Company
N
Not to Scale
120th Street
S-5
Screw Machine Parts Building
Office
Bearing Grinding Magneto Assembly
Smokestack
Receiving and Storage
Laboratory
Substation
Cistern
Cooler and Hydraulic Storage Building
Partially Demolished Building
Machine Shop
Former Dutch Boy (Carter-White) Lead Facility
Screw Machine Assembly
Chain Manufacturing
Mill
S-4
Threading Warehouse
Shipping-Packing & Nut/Bolt Warehouse
Forge Shop
Heat Treating
Ball Bearings Building
Nut and Bolt Heading Department
Steel Storage
Gear Magneto Manufacturing
Storage
Partially Demolished Building
All lines represent locations of former buildings.
Railroad
Metra Station
Legend:
Site Boundary
Stormwater Manholes
Sample Location
Elizabeth Street
12101
S-3
Residences
Elementary School
S-1
S-2
ecology and environment, inc.
Technical Assistance Team
Region V
111 W. Jackson Blvd., Chicago, Illinois 60604
TITLE Sampling Location Map
FIGURE # 3-1
SITE International Harvester
TDD T05-9505-011
SOURCE Ecology and Environment, Inc.
CITY Chicago
STATE Illinois
DATE: 1995

# 4. ANALYTICAL RESULTS

Soil samples S-1 through S-5 were analyzed for volatile organic compounds (VOCs) (Method SW-846 8260), semivolatile organic compounds (SVOCs) (Method SW-846 8270), organochlorine pesticides (Method SW-846 8081), polychlorinated biphenyls (PCBs) (Method SW-846 8081), total and reactive cyanide (Method 9010) and sulfide (Method 9030), priority pollutant metals (Method SW-846 3051/6010), and total petroleum oil (Method 418.1). In addition, only sample S-1 was analyzed for oil and grease (Method 413.1). All soil samples were analyzed by Athena Analytical Laboratory of Chicago, Illinois, under TDD T05-9505-806, utilizing quality assurance (QA) level II guidance. A summary of the data analysis results is presented in Table 4-1. The analytical data have been validated by E & E's Quality Assurance/Quality Control (QA/QC) department and approved for use in this report. See Appendix B for analytical data results.

**Table 4-1**

**ANALYTICAL DATA RESULTS**
**INTERNATIONAL HARVESTER**
**CHICAGO, ILLINOIS**

**(units = mg/kg)**

| Parameter | Sample Number | | | | |
|---|---|---|---|---|---|
| | S-1 | S-2 | S-3 | S-4 | S-5 |
| Reactive Cyanide | U | U | U | U | U |
| Total Cyanide | U | U | U | U | U |
| Reactive Sulfide | U | U | U | U | U |
| Total Sulfide | U | U | U | U | U |
| Total Petroleum Oil | U | U | U | U | U |
| Oil and Grease | U | NA | NA | NA | NA |
| Pesticides | <MDL | <MDL | <MDL | <MDL | <MDL |
| PCBs | <MDL | <MDL | <MDL | <MDL | <MDL |

ATHENA ANALYTICAL LABORATORY, INC.

8609 West Bryn Mawr
Suite 201
Chicago, Illinois 60631
PHONE 312-693-8030
FAX 312-693-8783

**To:** Ecology and Environment, Inc.
6777 Engle Road
Cleveland, Ohio 44130
Attention: Emily S. Landis

**Report Date:** 06/19/95
**Date Received:** 06/02/95
**Analysis Date:** 06/06/95
**Method:** SW-846 8260
**Matrix:** SOIL
**AAL COC Number:** 001466

**Project Number:** ZT3054
**Project Name:** T05-9505-806
**P.O. Number:** N/A

all compound MDL's flagged per client 6/19/95

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-4 WEST BOUNDARY OF I.H. | AA08585 | | |
| Dichlorodifluoromethane | | 5 | < Stated MDL |
| Chloromethane | | 5 | < Stated MDL |
| Vinyl chloride | | 5 | < Stated MDL |
| Bromomethane | | 5 | < Stated MDL |
| Chloroethane | | 5 | < Stated MDL |
| Trichlorofluoromethane | | 5 | < Stated MDL |
| 1,1-Dichloroethene | | 5 | < Stated MDL |
| Carbon disulfide | | 10 | < Stated MDL |
| Methylene chloride | | 5 | < Stated MDL |
| cis-1,2-Dichloroethene | | 5 | < Stated MDL |
| Acetone | | 10 | < Stated MDL |
| 1,1-Dichloroethane | | 5 | < Stated MDL |
| 2-Butanone (MEK) | | 10 | < Stated MDL |
| trans-1,2-Dichlorothene | | 5 | < Stated MDL |
| Bromochloromethane | | 5 | < Stated MDL |
| 1,2-Dichloroethane | | 5 | < Stated MDL |
| 2,2-Dichloropropane | | 5 | < Stated MDL |
| Chloroform | | 5 | < Stated MDL |
| 1,1,1-Trichoroethane | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by: _____

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

all compounds MDL's Passed 8/12/95

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-4 WEST BOUNDARY OF I.H. | AA08585 | | |
| 1,1-Dichloro-1-propene | | 5 | < Stated MDL |
| Carbon tetrachloride | | 5 | < Stated MDL |
| Benzene | | 5 | < Stated MDL |
| Trichloroethene | | 5 | < Stated MDL |
| 1,2-Dichloropropane | | 5 | < Stated MDL |
| Bromdichloromethane | | 5 | < Stated MDL |
| Dibromomethane | | 5 | < Stated MDL |
| trans-1,3-Dichloropropene | | 5 | < Stated MDL |
| 4-Methyl-2-Pentanone (MIBK) | | 10 | < Stated MDL |
| cis-1,3-Dichloropropene | | 5 | < Stated MDL |
| 1,1,2-Trichloroethane | | 5 | < Stated MDL |
| 1,3-Dichloropropane | | 5 | < Stated MDL |
| Chlorodibromomethane | | 5 | < Stated MDL |
| 1,2-Dibromoethane | | 5 | < Stated MDL |
| Toluene | | 5 | < Stated MDL |
| 2-Hexanone | | 10 | < Stated MDL |
| Tetrachloroethene | | 5 | < Stated MDL |
| Chlorobenzene | | 5 | < Stated MDL |
| Ethylbenzene | | 5 | < Stated MDL |
| 1,1,1,2-Tetrachloroethane | | 5 | < Stated MDL |
| m,p,-Xylenes | | 5 | < Stated MDL |
| o-Xylene | | 5 | < Stated MDL |
| Styrene | | 5 | < Stated MDL |
| Bromoform | | 5 | < Stated MDL |
| 1,1,2,2-Tetrachloroethane | | 5 | < Stated MDL |
| 1,3,5-Trimethylbenzene | | 5 | < Stated MDL |
| Isopropylbenzene (Cumene) | | 5 | < Stated MDL |
| 1,2,4-Trimethylbenzene | | 5 | < Stated MDL |
| 1,2,3-Trichloropropane | | 5 | < Stated MDL |
| Propylbenzene | | 5 | < Stated MDL |
| Bromobenzene | | 5 | < Stated MDL |
| tert-Butylbenzene | | 5 | < Stated MDL |

Analyst's Initials: HH Reviewed by:

ATHENA ANALYTICAL LABORATORY, INC.

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-3 | AA08584 | | |
| RESIDENTIAL YARD | | | |
| 1,1-Dichloro-1-propene | | 5 | < Stated MDL |
| Carbon tetrachloride | | 5 | < Stated MDL |
| Benzene | | 5 | < Stated MDL |
| Trichloroethene | | 5 | < Stated MDL |
| 1,2-Dichloropropane | | 5 | < Stated MDL |
| Bromdichloromethane | | 5 | < Stated MDL |
| Dibromomethane | | 5 | < Stated MDL |
| trans-1,3-Dichloropropene | | 5 | < Stated MDL |
| 4-Methyl-2-Pentanone (MIBK) | | 10 | < Stated MDL |
| cis-1,3-Dichloropropene | | 5 | < Stated MDL |
| 1,1,2-Trichloroethane | | 5 | < Stated MDL |
| 1,3-Dichloropropane | | 5 | < Stated MDL |
| Chlorodibromomethane | | 5 | < Stated MDL |
| 1,2-Dibromoethane | | 5 | < Stated MDL |
| Toluene | | 5 | < Stated MDL |
| 2-Hexanone | | 10 | < Stated MDL |
| Tetrachloroethene | | 5 | < Stated MDL |
| Chlorobenzene | | 5 | < Stated MDL |
| Ethylbenzene | | 5 | < Stated MDL |
| 1,1,1,2-Tetrachloroethane | | 5 | < Stated MDL |
| m,p,-Xylenes | | 5 | < Stated MDL |
| o-Xylene | | 5 | < Stated MDL |
| Styrene | | 5 | < Stated MDL |
| Bromoform | | 5 | < Stated MDL |
| 1,1,2,2-Tetrachloroethane | | 5 | < Stated MDL |
| 1,3,5-Trimethylbenzene | | 5 | < Stated MDL |
| Isopropylbenzene (Cumene) | | 5 | < Stated MDL |
| 1,2,4-Trimethylbenzene | | 5 | < Stated MDL |
| 1,2,3-Trichloropropane | | 5 | < Stated MDL |
| Propylbenzene | | 5 | < Stated MDL |
| Bromobenzene | | 5 | < Stated MDL |
| tert-Butylbenzene | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by: [illegible]

ATHENA ANALYTICAL LABORATORY, INC.

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-3 RESIDENTIAL YARD | AA08584 | | |
| 2-Chlorotoluene | | 5 | < Stated MDL |
| 4-Chlorotoluene | | 5 | < Stated MDL |
| p-Isopropyltoluene (Cymene) | | 5 | < Stated MDL |
| sec-Butylbenzene | | 5 | < Stated MDL |
| n-Butylbenzene | | 5 | < Stated MDL |
| 1,3-Dichlorobenzene | | 5 | < Stated MDL |
| 1,4-Dichlorobenzene | | 5 | < Stated MDL |
| 1,2-Dichlorobenzene | | 5 | < Stated MDL |
| 1,2-Dibromo-3-chloropropane | | 5 | < Stated MDL |
| 1,2,4-Trichlorobenzene | | 5 | < Stated MDL |
| 1,2,3-Trichlorobenzene | | 5 | < Stated MDL |
| Hexachlorobutadiene | | 5 | < Stated MDL |
| Naphthalene | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by: cs

Carol So Chow
Laboratory Director

ATHENA ANALYTICAL LABORATORY, INC.

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-2 ELEMENTARY SCHOOL | AA08583 | | |
| 2-Chlorotoluene | | 5 | < Stated MDL |
| 4-Chlorotoluene | | 5 | < Stated MDL |
| p-Isopropyltoluene (Cymene) | | 5 | < Stated MDL |
| sec-Butylbenzene | | 5 | < Stated MDL |
| n-Butylbenzene | | 5 | < Stated MDL |
| 1,3-Dichlorobenzene | | 5 | < Stated MDL |
| 1,4-Dichlorobenzene | | 5 | < Stated MDL |
| 1,2-Dichlorobenzene | | 5 | < Stated MDL |
| 1,2-Dibromo-3-chloropropane | | 5 | < Stated MDL |
| 1,2,4-Trichlorobenzene | | 5 | < Stated MDL |
| 1,2,3-Trichlorobenzene | | 5 | < Stated MDL |
| Hexachlorobutadiene | | 5 | < Stated MDL |
| Naphthalene | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by: ch

Carol So Chow
Laboratory Director

ATHENA ANALYTICAL LABORATORY, INC.

ATHENA ANALYTICAL LABORATORY, INC.

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To: Ecology and Environment, Inc.
6777 Engle Road
Cleveland, Ohio 44130
Attention: Emily S. Landis

**Report Date:** 06/19/95
**Date Received:** 06/02/95
**Analysis Date:** 06/06/95
**Method:** SW-846 8260
**Matrix:** SOIL
**AAL COC Number:** 001466

**Project Number:** ZT3054
**Project Name:** T05-9505-806
**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-3 RESIDENTIAL YARD | AA08584 | | |
| Dichlorodifluoromethane | | 5 | < Stated MDL |
| Chloromethane | | 5 | < Stated MDL |
| Vinyl chloride | | 5 | < Stated MDL |
| Bromomethane | | 5 | < Stated MDL |
| Chloroethane | | 5 | < Stated MDL |
| Trichlorofluoromethane | | 5 | < Stated MDL |
| 1,1-Dichloroethene | | 5 | < Stated MDL |
| Carbon disulfide | | 10 | < Stated MDL |
| Methylene chloride | | 5 | < Stated MDL |
| cis-1,2-Dichloroethene | | 5 | < Stated MDL |
| Acetone | | 10 | < Stated MDL |
| 1,1-Dichloroethane | | 5 | < Stated MDL |
| 2-Butanone (MEK) | | 10 | < Stated MDL |
| trans-1,2-Dichlorothene | | 5 | < Stated MDL |
| Bromochloromethane | | 5 | < Stated MDL |
| 1,2-Dichloroethane | | 5 | < Stated MDL |
| 2,2-Dichloropropane | | 5 | < Stated MDL |
| Chloroform | | 5 | < Stated MDL |
| 1,1,1-Trichoroethane | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by: _____

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PHONE 312-693-8030
FAX 312-693-8783

**To:** Ecology and Environment, Inc.
6777 Engle Road
Cleveland, Ohio 44130
Attention: Emily S. Landis

**Report Date:** 06/19/95
**Date Received:** 06/02/95
**Analysis Date:** 06/06/95
**Method:** SW-846 8260
**Matrix:** SOIL
**AAL COC Number:** 001466

**Project Number:** ZT3054
**Project Name:** T05-9505-806
**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| **S-2** ELEMENTARY SCHOOL | **AA08583** | | |
| Dichlorodifluoromethane | | 5 | < Stated MDL |
| Chloromethane | | 5 | < Stated MDL |
| Vinyl chloride | | 5 | < Stated MDL |
| Bromomethane | | 5 | < Stated MDL |
| Chloroethane | | 5 | < Stated MDL |
| Trichlorofluoromethane | | 5 | < Stated MDL |
| 1,1-Dichloroethene | | 5 | < Stated MDL |
| Carbon disulfide | | 10 | < Stated MDL |
| Methylene chloride | | 5 | < Stated MDL |
| cis-1,2-Dichloroethene | | 5 | < Stated MDL |
| Acetone | | 10 | < Stated MDL |
| 1,1-Dichloroethane | | 5 | < Stated MDL |
| 2-Butanone (MEK) | | 10 | < Stated MDL |
| trans-1,2-Dichlorothene | | 5 | < Stated MDL |
| Bromochloromethane | | 5 | < Stated MDL |
| 1,2-Dichloroethane | | 5 | < Stated MDL |
| 2,2-Dichloropropane | | 5 | < Stated MDL |
| Chloroform | | 5 | < Stated MDL |
| 1,1,1-Trichoroethane | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by:

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-2 ELEMENTARY SCHOOL | AA08583 | | |
| 1,1-Dichloro-1-propene | | 5 | < Stated MDL |
| Carbon tetrachloride | | 5 | < Stated MDL |
| Benzene | | 5 | < Stated MDL |
| Trichloroethene | | 5 | < Stated MDL |
| 1,2-Dichloropropane | | 5 | < Stated MDL |
| Bromdichloromethane | | 5 | < Stated MDL |
| Dibromomethane | | 5 | < Stated MDL |
| trans-1,3-Dichloropropene | | 5 | < Stated MDL |
| 4-Methyl-2-Pentanone (MIBK) | | 10 | < Stated MDL |
| cis-1,3-Dichloropropene | | 5 | < Stated MDL |
| 1,1,2-Trichloroethane | | 5 | < Stated MDL |
| 1,3-Dichloropropane | | 5 | < Stated MDL |
| Chlorodibromomethane | | 5 | < Stated MDL |
| 1,2-Dibromoethane | | 5 | < Stated MDL |
| Toluene | | 5 | < Stated MDL |
| 2-Hexanone | | 10 | < Stated MDL |
| Tetrachloroethene | | 5 | < Stated MDL |
| Chlorobenzene | | 5 | < Stated MDL |
| Ethylbenzene | | 5 | < Stated MDL |
| 1,1,1,2-Tetrachloroethane | | 5 | < Stated MDL |
| m,p,-Xylenes | | 5 | < Stated MDL |
| o-Xylene | | 5 | < Stated MDL |
| Styrene | | 5 | < Stated MDL |
| Bromoform | | 5 | < Stated MDL |
| 1,1,2,2-Tetrachloroethane | | 5 | < Stated MDL |
| 1,3,5-Trimethylbenzene | | 5 | < Stated MDL |
| Isopropylbenzene (Cumene) | | 5 | < Stated MDL |
| 1,2,4-Trimethylbenzene | | 5 | < Stated MDL |
| 1,2,3-Trichloropropane | | 5 | < Stated MDL |
| Propylbenzene | | 5 | < Stated MDL |
| Bromobenzene | | 5 | < Stated MDL |
| tert-Butylbenzene | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by:

ATHENA ANALYTICAL LABORATORY, INC.

ATHENA ANALYTICAL LABORATORY, INC.

8609 West Bryn Mawr
Suite 201
Chicago, Illinois 60631
PHONE 312-693-8030
FAX 312-693-8783

To: Ecology and Environment, Inc.
6777 Engle Road
Cleveland, Ohio 44130
Attention: Emily S. Landis

**Report Date:** 06/19/95
**Date Received:** 06/02/95
**Analysis Date:** 06/06/95
**Method:** SW-846 8260
**Matrix:** SOIL
**AAL COC Number:** 001466

**Project Number:** ZT3054
**Project Name:** T05-9505-806
**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-1 | AA08582 | | |
| AREA EAST OF BASKETBALL COURT | | | |
| Dichlorodifluoromethane | | 5 | < Stated MDL |
| Chloromethane | | 5 | < Stated MDL |
| Vinyl chloride | | 5 | < Stated MDL |
| Bromomethane | | 5 | < Stated MDL |
| Chloroethane | | 5 | < Stated MDL |
| Trichlorofluoromethane | | 5 | < Stated MDL |
| 1,1-Dichloroethene | | 5 | < Stated MDL |
| Carbon disulfide | | 10 | < Stated MDL |
| Methylene chloride | | 5 | < Stated MDL |
| cis-1,2-Dichloroethene | | 5 | < Stated MDL |
| Acetone | | 10 | < Stated MDL |
| 1,1-Dichloroethane | | 5 | < Stated MDL |
| 2-Butanone (MEK) | | 10 | < Stated MDL |
| trans-1,2-Dichlorothene | | 5 | < Stated MDL |
| Bromochloromethane | | 5 | < Stated MDL |
| 1,2-Dichloroethane | | 5 | < Stated MDL |
| 2,2-Dichloropropane | | 5 | < Stated MDL |
| Chloroform | | 5 | < Stated MDL |
| 1,1,1-Trichoroethane | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by: [illegible]

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

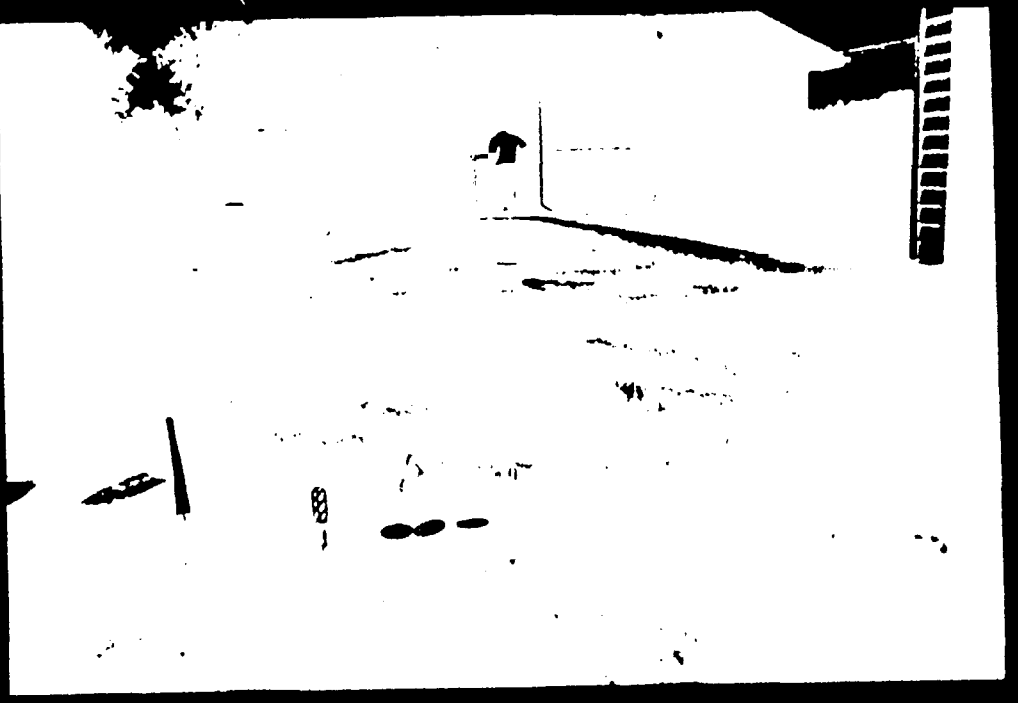
| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-1 | AA08582 | | |
| AREA EAST OF BASKETBALL COURT | | | |
| 1,1-Dichloro-1-propene | | 5 | < Stated MDL |
| Carbon tetrachloride | | 5 | < Stated MDL |
| Benzene | | 5 | < Stated MDL |
| Trichloroethene | | 5 | < Stated MDL |
| 1,2-Dichloropropane | | 5 | < Stated MDL |
| Bromdichloromethane | | 5 | < Stated MDL |
| Dibromomethane | | 5 | < Stated MDL |
| trans-1,3-Dichloropropene | | 5 | < Stated MDL |
| 4-Methyl-2-Pentanone (MIBK) | | 10 | < Stated MDL |
| cis-1,3-Dichloropropene | | 5 | < Stated MDL |
| 1,1,2-Trichloroethane | | 5 | < Stated MDL |
| 1,3-Dichloropropane | | 5 | < Stated MDL |
| Chlorodibromomethane | | 5 | < Stated MDL |
| 1,2-Dibromoethane | | 5 | < Stated MDL |
| Toluene | | 5 | < Stated MDL |
| 2-Hexanone | | 10 | < Stated MDL |
| Tetrachloroethene | | 5 | < Stated MDL |
| Chlorobenzene | | 5 | < Stated MDL |
| Ethylbenzene | | 5 | < Stated MDL |
| 1,1,1,2-Tetrachloroethane | | 5 | < Stated MDL |
| m,p,-Xylenes | | 5 | < Stated MDL |
| o-Xylene | | 5 | < Stated MDL |
| Styrene | | 5 | < Stated MDL |
| Bromoform | | 5 | < Stated MDL |
| 1,1,2,2-Tetrachloroethane | | 5 | < Stated MDL |
| 1,3,5-Trimethylbenzene | | 5 | < Stated MDL |
| Isopropylbenzene (Cumene) | | 5 | < Stated MDL |
| 1,2,4-Trimethylbenzene | | 5 | < Stated MDL |
| 1,2,3-Trichloropropane | | 5 | < Stated MDL |
| Propylbenzene | | 5 | < Stated MDL |
| Bromobenzene | | 5 | < Stated MDL |
| tert-Butylbenzene | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by:

ATHENA ANALYTICAL LABORATORY, INC.

Site: International Harvester
Camera: Polaroid 35mm Photographer: P. Zwilling
Subject: View of soil sample S-3.

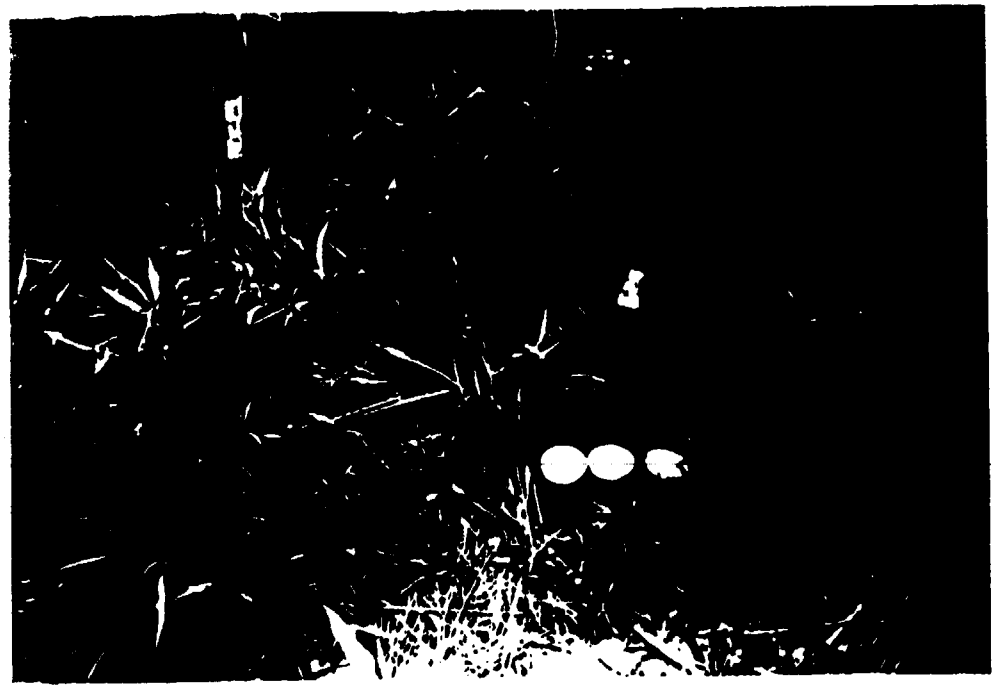
Camera: Polaroid 35mm Photographer: P. Zwilling
Subject: Perspective view from soil sample S-3 at Mr. Hassam's residence



Site: International Harvester Date: 6-1-95 Time: 1310 Direction: west
Camera: Polaroid 35mm Photographer: P. Zwilling
Subject: View of soil sample S-4.

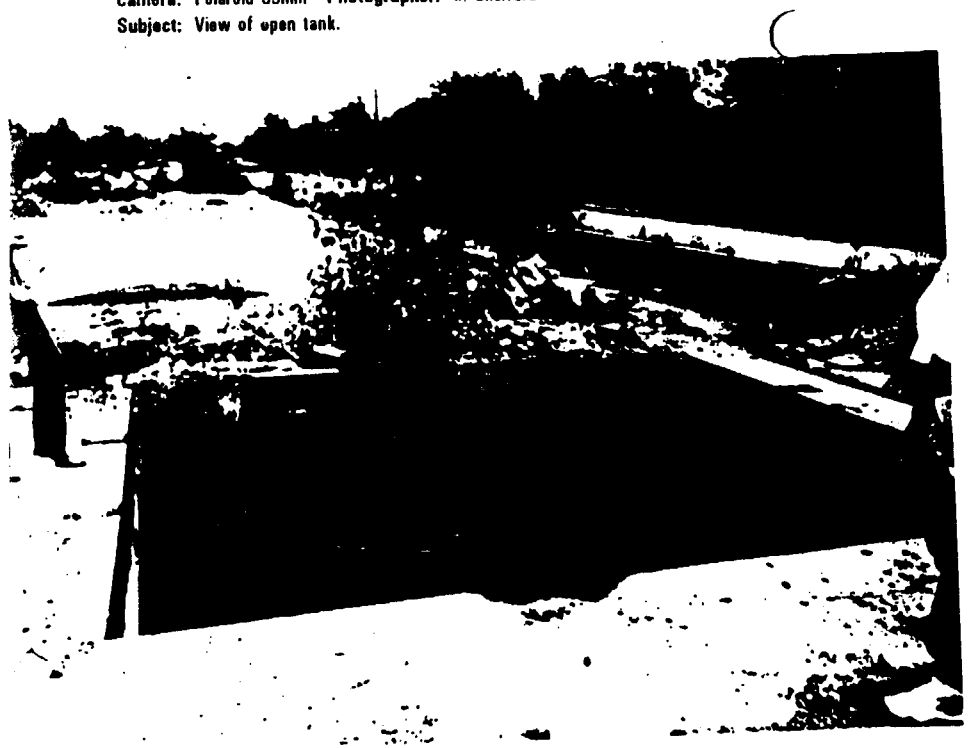
Site: International Harvester Date: 6-1-95 Time: 1311 Direction: east
Camera: Polaroid 35mm Photographer: P. Zwilling
Subject: Perspective view from soil sample S-4 on west property line of IH site.

Camera: Polaroid 35mm Photographer: P. Zwilling
Subject: View of soil sample S-5.



Camera: Polaroid 35mm Photographer: P. Zwilling
Subject: Perspective view from soil sample S-5 on north property line of III site

Camera: Polaroid 35mm Photographer: J. Sherrard
Subject: View of open tank.



Site: International Harvester Date: 6-1-95 Time: 1105 Direction: N/A
Camera: Polaroid 35mm Photographer: J. Sherrard
Subject: .View of open manhole.

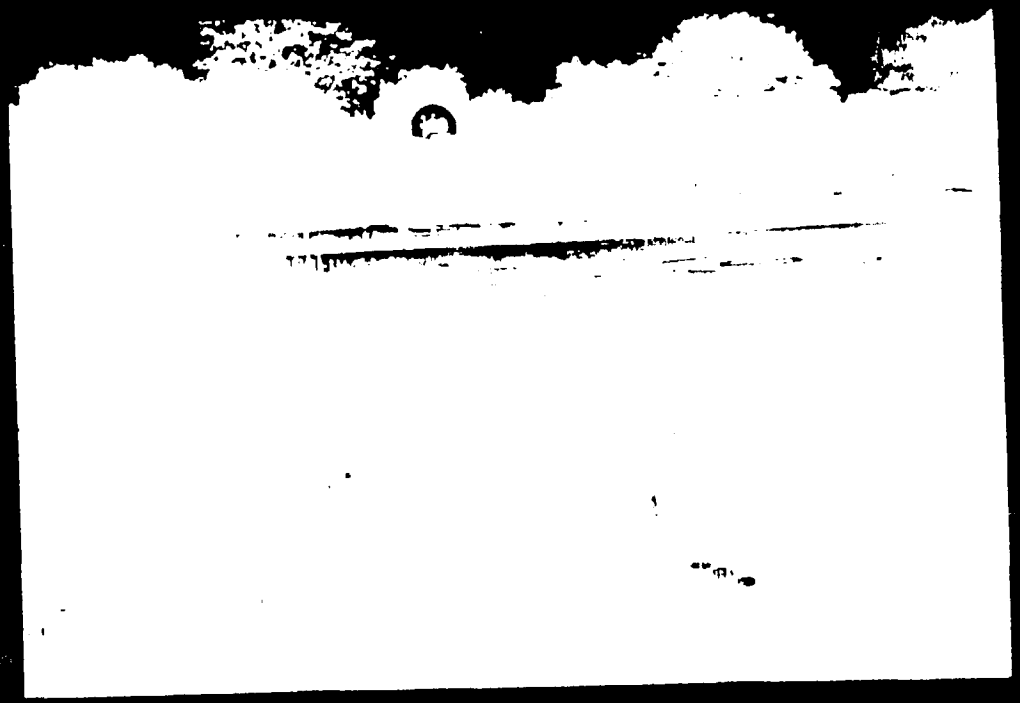
Subject: View of [illegible] of open tank

Site: International Harvester Date: 6-1-95 Time: 1110 Direction: southeast
Camera: Polaroid 35mm Photographer: J. Sherrard
Subject: View of oil-stained area located near railroad tracks on the southwest part of the IH site

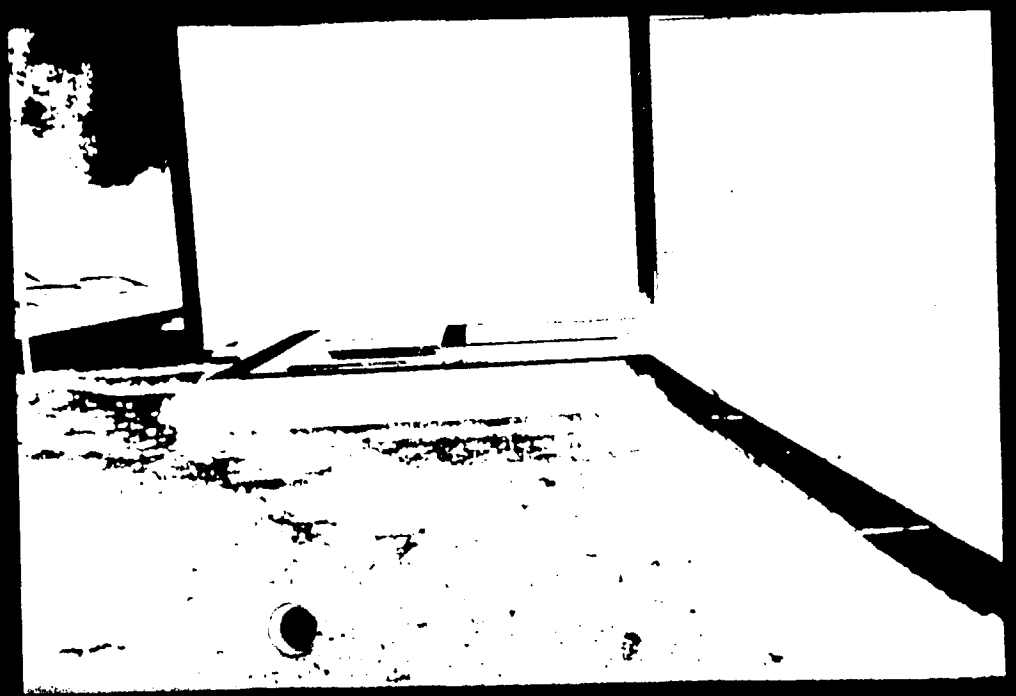
Camera: Polaroid 35mm Photographer: P. Zwilling
Subject: View of soil sample S-1.

Site: International Harvester Date: 6-1-95 Time: 1231 Direction: north
Camera: Polaroid 35mm Photographer: P. Zwilling
Subject: View of soil sample S-2.

Subject: Perspective view from soil sample S-1.



Site: International Harvester Date: 6-1-95 Time: 1232 Direction: west
Camera: Polaroid 35mm Photographer: P. Zwilling
Subject: Perspective view from soil sample S-2. Notice school in background.



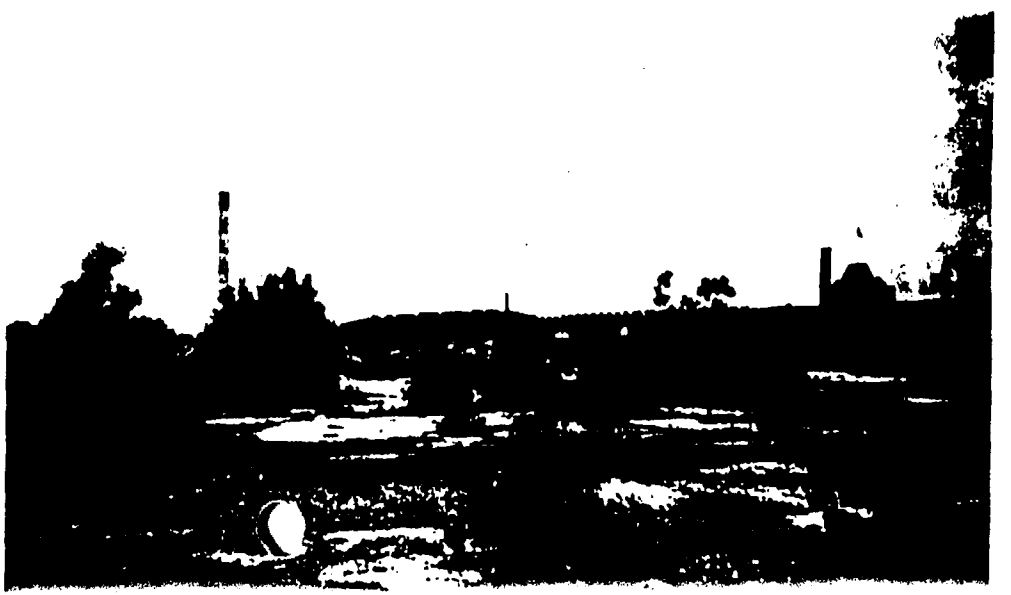
# APPENDIX A
# SITE PHOTOGRAPHS

Site: International Harvester Date: 6-1-95 Time: 1045 Direction: northeast
Camera: Polaroid 35mm Photographer: J. Sherrard
Subject: View of partially demolished Mill Building on Dutch Bay (DB) property.

Site: International Harvester Date: 6-1-95 Time: 1050 Direction: north
Camera: Polaroid 35mm Photographer: J. Sherrard
Subject: View of rubble pile, Mill Building, and east property line.

Site: International Harvester Date: 6-1-95 Time: 1050 Direction: west
Camera: Polaroid 35mm Photographer: J. Sherrard
Subject: West view of International Harvester (IH) site from DB property.

Site: International Harvester Date: 6-1-95 Time: 1055 Direction: northwest
Camera: Polaroid 35mm Photographer: J. Sherrard
Subject: Northwest view of IH site.

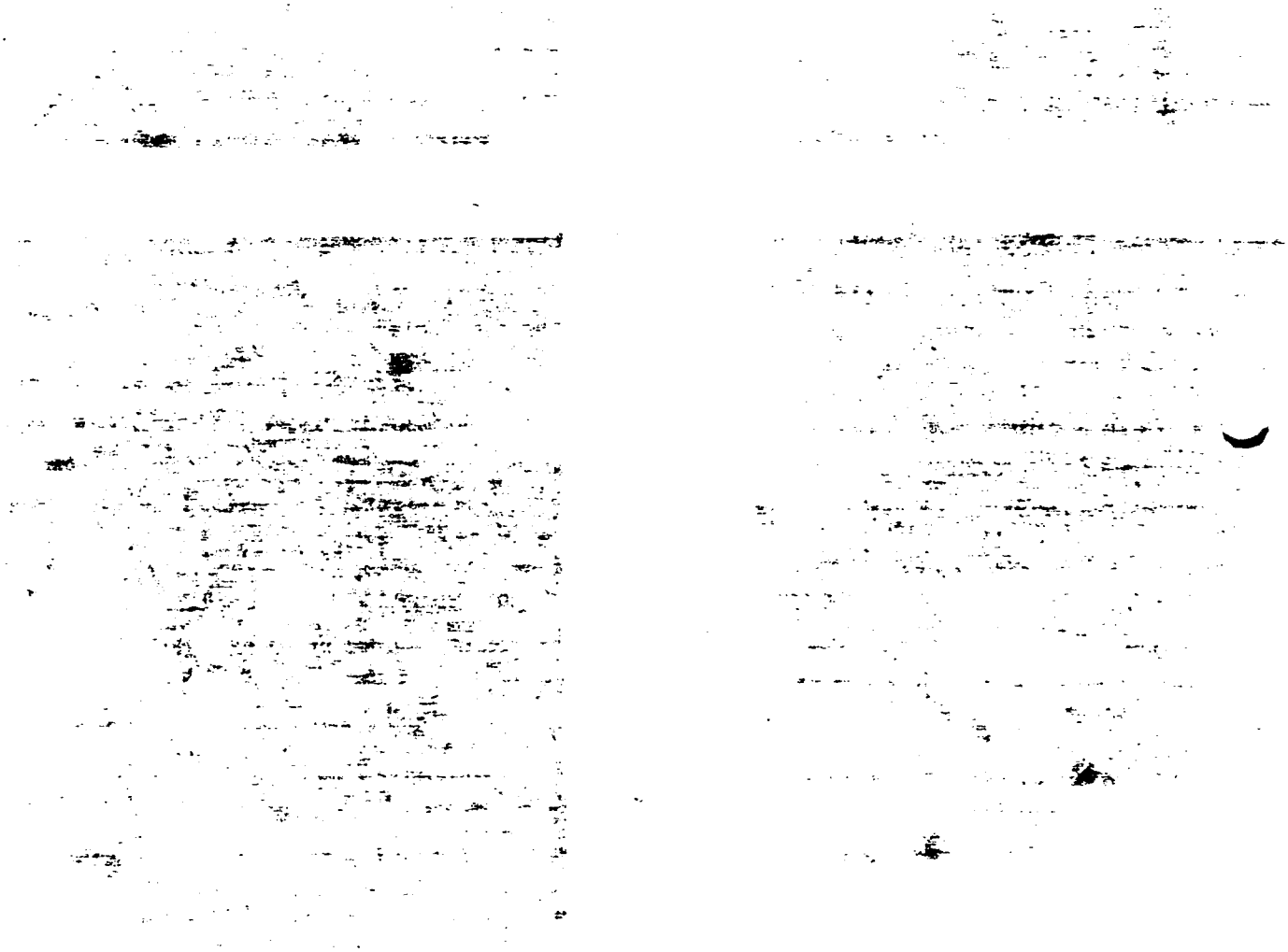


## 5. DISCUSSION OF POTENTIAL THREATS

Analytical results from the June 1, 1995, sampling did not indicate the presence of an imminent and substantial endangerment to human health or the environment, based on the criteria set forth in paragraph (b) (2) of Part 300.415 of the National Oil and Hazardous Substances Contingency Plan (NCP).

## 6. SUMMARY

A SA of the IH site was performed on June 1, 1995 by U.S. EPA and TAT. Six soil samples were collected from the site property, a nearby school grounds, and a nearby residence. While the previous investigations have demonstrated that the site poses imminent and substantial endangerment to human health and environment, the analytical results from this investigation showed that off-site migration of contaminants has not occurred in the areas that were sampled.



AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

all compounds reported @ MDL's per 8270

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-4 | AA08585 | | |
| WEST BOUNDARY OF I.H. | | | |
| 2-Chlorotoluene | | 5 | < Stated MDL |
| 4-Chlorotoluene | | 5 | < Stated MDL |
| p-Isopropyltoluene (Cymene) | | 5 | < Stated MDL |
| sec-Butylbenzene | | 5 | < Stated MDL |
| n-Butylbenzene | | 5 | < Stated MDL |
| 1,3-Dichlorobenzene | | 5 | < Stated MDL |
| 1,4-Dichlorobenzene | | 5 | < Stated MDL |
| 1,2-Dichlorobenzene | | 5 | < Stated MDL |
| 1,2-Dibromo-3-chloropropane | | 5 | < Stated MDL |
| 1,2,4-Trichlorobenzene | | 5 | < Stated MDL |
| 1,2,3-Trichlorobenzene | | 5 | < Stated MDL |
| Hexachlorobutadiene | | 5 | < Stated MDL |
| Naphthalene | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by: ch

Carol So Chow
Laboratory Director

ATHENA ANALYTICAL LABORATORY, INC.

ATHENA ANALYTICAL LABORATORY, INC.

8609 West Bryn Mawr
Suite 201
Chicago, Illinois 60631
PHONE 312-693-8030
FAX 312-693-8783

**To:** Ecology and Environment, Inc.
6777 Engle Road
Cleveland, Ohio 44130
Attention: Emily S. Landis

**Report Date:** 06/19/95
**Date Received:** 06/02/95
**Analysis Date:** 06/06/95
**Method:** SW-846 8260
**Matrix:** SOIL
**AAL COC Number:** 001466

**Project Number:** ZT3054
**Project Name:** T05-9505-806
**P.O. Number:** N/A

all MDLs flagged ed 8-2-95

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| **S-5** NORTH BOUNDARY OF I.H. | **AA08586** | | |
| Dichlorodifluoromethane | | 5 | < Stated MDL |
| Chloromethane | | 5 | < Stated MDL |
| Vinyl chloride | | 5 | < Stated MDL |
| Bromomethane | | 5 | < Stated MDL |
| Chloroethane | | 5 | < Stated MDL |
| Trichlorofluoromethane | | 5 | < Stated MDL |
| 1,1-Dichloroethene | | 5 | < Stated MDL |
| Carbon disulfide | | 10 | < Stated MDL |
| Methylene chloride | | 5 | < Stated MDL |
| cis-1,2-Dichloroethene | | 5 | < Stated MDL |
| Acetone | | 10 | < Stated MDL |
| 1,1-Dichloroethane | | 5 | < Stated MDL |
| 2-Butanone (MEK) | | 10 | < Stated MDL |
| trans-1,2-Dichlorothene | | 5 | < Stated MDL |
| Bromochloromethane | | 5 | < Stated MDL |
| 1,2-Dichloroethane | | 5 | < Stated MDL |
| 2,2-Dichloropropane | | 5 | < Stated MDL |
| Chloroform | | 5 | < Stated MDL |
| 1,1,1-Trichoroethane | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by: [illegible]

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

all MDLs flagged per 8/17/95

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-5 NORTH BOUNDARY OF I.H. | AA08586 | | |
| 1,1-Dichloro-1-propene | | 5 | < Stated MDL |
| Carbon tetrachloride | | 5 | < Stated MDL |
| Benzene | | 5 | < Stated MDL |
| Trichloroethene | | 5 | < Stated MDL |
| 1,2-Dichloropropane | | 5 | < Stated MDL |
| Bromdichloromethane | | 5 | < Stated MDL |
| Dibromomethane | | 5 | < Stated MDL |
| trans-1,3-Dichloropropene | | 5 | < Stated MDL |
| 4-Methyl-2-Pentanone (MIBK) | | 10 | < Stated MDL |
| cis-1,3-Dichloropropene | | 5 | < Stated MDL |
| 1,1,2-Trichloroethane | | 5 | < Stated MDL |
| 1,3-Dichloropropane | | 5 | < Stated MDL |
| Chlorodibromomethane | | 5 | < Stated MDL |
| 1,2-Dibromoethane | | 5 | < Stated MDL |
| Toluene | | 5 | < Stated MDL |
| 2-Hexanone | | 10 | < Stated MDL |
| Tetrachloroethene | | 5 | < Stated MDL |
| Chlorobenzene | | 5 | < Stated MDL |
| Ethylbenzene | | 5 | < Stated MDL |
| 1,1,1,2-Tetrachloroethane | | 5 | < Stated MDL |
| m,p,-Xylenes | | 5 | < Stated MDL |
| o-Xylene | | 5 | < Stated MDL |
| Styrene | | 5 | < Stated MDL |
| Bromoform | | 5 | < Stated MDL |
| 1,1,2,2-Tetrachloroethane | | 5 | < Stated MDL |
| 1,3,5-Trimethylbenzene | | 5 | < Stated MDL |
| Isopropylbenzene (Cumene) | | 5 | < Stated MDL |
| 1,2,4-Trimethylbenzene | | 5 | < Stated MDL |
| 1,2,3-Trichloropropane | | 5 | < Stated MDL |
| Propylbenzene | | 5 | < Stated MDL |
| Bromobenzene | | 5 | < Stated MDL |
| tert-Butylbenzene | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by: ch

ATHENA ANALYTICAL LABORATORY, INC.

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

all MDLs flagged 8.8.95 JM

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-5 NORTH BOUNDARY OF I.H. | AA08586 | | |
| 2-Chlorotoluene | | 5 | < Stated MDL |
| 4-Chlorotoluene | | 5 | < Stated MDL |
| p-Isopropyltoluene (Cymene) | | 5 | < Stated MDL |
| sec-Butylbenzene | | 5 | < Stated MDL |
| n-Butylbenzene | | 5 | < Stated MDL |
| 1,3-Dichlorobenzene | | 5 | < Stated MDL |
| 1,4-Dichlorobenzene | | 5 | < Stated MDL |
| 1,2-Dichlorobenzene | | 5 | < Stated MDL |
| 1,2-Dibromo-3-chloropropane | | 5 | < Stated MDL |
| 1,2,4-Trichlorobenzene | | 5 | < Stated MDL |
| 1,2,3-Trichlorobenzene | | 5 | < Stated MDL |
| Hexachlorobutadiene | | 5 | < Stated MDL |
| Naphthalene | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by: cs

Carol So Chow
Laboratory Director

ATHENA ANALYTICAL LABORATORY, INC.

ATHENA ANALYTICAL LABORATORY, INC.

8609 West Bryn Mawr
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Chicago, Illinois 60631
PHONE 312-693-8030
FAX 312-693-8783

**To:** Ecology & Environment
6777 Engle Road
Cleveland, OH 44130
Attn: Emily Landis

**Report Date:** 06/16/95
**Date Received:** 06/02/95
**Analysis Date:** 06/07/95
**Method:** 8260
**Matrix:** Soil

**Project Number:** ZT3054
**Project Name:** T05-9505-806
**P.O. Number:** n/a
AAL Sample No: AA08585re
Client Sample No: S - 4

AAL COC NUMBER: 01466

| Analyte | MDL (ug/L) | Results (ug/L) |
|---|---|---|
| Dichlorodifluoromethane | 5 | <MDL |
| Chloromethane | 5 | <MDL |
| Vinyl Chloride | 5 | <MDL |
| Bromomethane | 5 | <MDL |
| Chloroethane | 5 | <MDL |
| Trichlorofluoromethane | 5 | <MDL |
| 1.1-Dichloroethene | 5 | <MDL |
| Carbon Disulfide | 10 | <MDL |
| Methylene Chloride | 5 | <MDL |
| cis-1.2-Dichloroethene | 5 | <MDL |
| 1.1-Dichloroethane | 5 | <MDL |
| Acetone | 10 | <MDL |
| trans-1.2-Dichloroethene | 5 | <MDL |
| 2.2-Dichloropropane | 5 | <MDL |
| 2-Butanone(MEK) | 10 | <MDL |
| Bromochloromethane | 5 | <MDL |
| Chloroform | 5 | <MDL |
| 1.1.1-Trichloroethane | 5 | <MDL |
| 1.1-Dichloro-1-Propene | 5 | <MDL |
| Carbon Tetrachloride | 5 | <MDL |
| 1.2-Dichloroethane | 5 | <MDL |
| Benzene | 5 | <MDL |
| Trichloroethene | 5 | <MDL |
| 1.2-Dichloropropane | 5 | <MDL |
| Dibromomethane | 5 | <MDL |
| Bromodichloromethane | 5 | <MDL |
| trans-1.3-Dichloropropene | 5 | <MDL |
| 4-Methyl-2-Pentanone(MIBK) | 10 | <MDL |
| cis-1.3-Dichloropropane | 5 | <MDL |
| 1.1.2 - Trichloroethane | 5 | <MDL |

**Project Number**: ZT3054
**Project Name**: T05-9505-806 AAL COC NUMBER: 01466
**P.O. Number**: n/a
AAL Sample No: AA08585re
Client Sample No: S - 4

| Analyte | MDL (ug/L) | Results (ug/L) |
|---|---|---|
| 1,3-Dichloropropane | 5 | <MDL |
| Chlorodibromomethane | 5 | <MDL |
| 1,2-dibromomethane | 5 | <MDL |
| Chlorobenzene | 5 | <MDL |
| 1,1,1,2 Tetrachlorethane | 5 | <MDL |
| Toluene | 5 | <MDL |
| Tetrachloroethene | 5 | <MDL |
| 2-Hexanone | 10 | <MDL |
| Ethylbenzene | 5 | <MDL |
| m,p-Xylenes | 5 | <MDL |
| o-Xylene | 5 | <MDL |
| Styrene | 5 | <MDL |
| Bromoform | 5 | <MDL |
| Isopropylbenzene (Cumene) | 5 | <MDL |
| 1,1,2,2-Tetrachloroethane | 5 | <MDL |
| 1,2,3-Trichloropropane | 5 | <MDL |
| Propylbenzene | 5 | <MDL |
| Bromobenzene | 5 | <MDL |
| 1,3,5-Trimethylbenzene | 5 | <MDL |
| 2-Chlorotoluene | 5 | <MDL |
| 4-Chlorotoluene | 5 | <MDL |
| tert-Butylbenzene | 5 | <MDL |
| 1,2,4-Trimethylbenzene | 5 | <MDL |
| sec-Butylbenzene | 5 | <MDL |
| p-Isopropyltoluene (Cymene) | 5 | <MDL |
| 1,3-Dichlorobenzene | 5 | <MDL |
| 1,4-Dichlorobenzene | 5 | <MDL |
| n-Butylbenzene | 5 | <MDL |
| 1,2-Dichlorobenzene | 5 | <MDL |
| 1,2-Dibromo-3-Chloropropane(DBCP) | 5 | <MDL |
| 1,2,4-Trichlorobenzene | 5 | <MDL |
| Hexachlorobutadiene | 5 | <MDL |
| Naphthalene | 5 | <MDL |
| 1,2,3-Trichlorobenzene | 5 | <MDL |

MDL = Method Detection Limit

Analyst's Initials AH Reviewed by ch

Carol So Chow
Laboratory Director

ATHENA ANALYTICAL LABORATORY, INC.

ATHENA ANALYTICAL LABORATORY, INC.

8609 West Bryn Mawr
Suite 201
Chicago, Illinois 60631
PHONE 312-693-8030
FAX 312-693-8783

To: Ecology & Environment
6777 Engle Road
Cleveland, OH 44130
Attn: Emily Landis

**Report Date**: 06/16/95
**Date Received**: 06/02/95
**Analysis Date**: 06/07/95
**Method**: 8260
**Matrix**: **Soil**

**Project Number**: ZT3054
**Project Name**: T05-9505-806
**P.O. Number:** n/a
AAL Sample No: AA08586re
Client Sample No: S - 5

AAL COC NUMBER: 01466

| Analyte | MDL (ug/L) | Results (ug/L) |
|---|---|---|
| Dichlorodifluoromethane | 5 | <MDL |
| Chloromethane | 5 | <MDL |
| Vinyl Chloride | 5 | <MDL |
| Bromomethane | 5 | <MDL |
| Chloroethane | 5 | <MDL |
| Trichlorofluoromethane | 5 | <MDL |
| 1,1-Dichloroethene | 5 | <MDL |
| Carbon Disulfide | 10 | <MDL |
| Methylene Chloride | 5 | <MDL |
| cis-1,2-Dichloroethene | 5 | <MDL |
| 1,1-Dichloroethane | 5 | <MDL |
| Acetone | 10 | <MDL |
| trans-1,2-Dichloroethene | 5 | <MDL |
| 2,2-Dichloropropane | 5 | <MDL |
| 2-Butanone(MEK) | 10 | <MDL |
| Bromochloromethane | 5 | <MDL |
| Chloroform | 5 | <MDL |
| 1,1,1-Trichloroethane | 5 | <MDL |
| 1,1-Dichloro-1-Propene | 5 | <MDL |
| Carbon Tetrachloride | 5 | <MDL |
| 1,2-Dichloroethane | 5 | <MDL |
| Benzene | 5 | <MDL |
| Trichloroethene | 5 | <MDL |
| 1,2-Dichloropropane | 5 | <MDL |
| Dibromomethane | 5 | <MDL |
| Bromodichloromethane | 5 | <MDL |
| trans-1,3-Dichloropropene | 5 | <MDL |
| 4-Methyl-2-Pentanone(MIBK) | 10 | <MDL |
| cis-1,3-Dichloropropane | 5 | <MDL |
| 1,1,2 - Trichloroethane | 5 | <MDL |

**Project Number**: ZT3054
**Project Name**: T05-9505-806 AAL COC NUMBER: 01466
**P.O. Number:** n/a
AAL Sample No: AA08586re
Client Sample No: S - 5

| Analyte | MDL (ug/L) | Results (ug/L) |
|---|---|---|
| 1,3-Dichloropropane | 5 | <MDL |
| Chlorodibromomethane | 5 | <MDL |
| 1,2-dibromomethane | 5 | <MDL |
| Chlorobenzene | 5 | <MDL |
| 1,1,1,2 Tetrachlorethane | 5 | <MDL |
| Toluene | 5 | <MDL |
| Tetrachloroethene | 5 | <MDL |
| 2-Hexanone | 10 | <MDL |
| Ethylbenzene | 5 | <MDL |
| m,p-Xylenes | 5 | <MDL |
| o-Xylene | 5 | <MDL |
| Styrene | 5 | <MDL |
| Bromoform | 5 | <MDL |
| Isopropylbenzene (Cumene) | 5 | <MDL |
| 1,1,2,2-Tetrachloroethane | 5 | <MDL |
| 1,2,3-Trichloropropane | 5 | <MDL |
| Propylbenzene | 5 | <MDL |
| Bromobenzene | 5 | <MDL |
| 1,3,5-Trimethylbenzene | 5 | <MDL |
| 2-Chlorotoluene | 5 | <MDL |
| 4-Chlorotoluene | 5 | <MDL |
| tert-Butylbenzene | 5 | <MDL |
| 1,2,4-Trimethylbenzene | 5 | <MDL |
| sec-Butylbenzene | 5 | <MDL |
| p-Isopropyltoluene (Cymene) | 5 | <MDL |
| 1,3-Dichlorobenzene | 5 | <MDL |
| 1,4-Dichlorobenzene | 5 | <MDL |
| n-Butylbenzene | 5 | <MDL |
| 1,2-Dichlorobenzene | 5 | <MDL |
| 1,2-Dibromo-3-Chloropropane(DBCP) | 5 | <MDL |
| 1,2,4-Trichlorobenzene | 5 | <MDL |
| Hexachlorobutadiene | 5 | <MDL |
| Naphthalene | 5 | <MDL |
| 1,2,3-Trichlorobenzene | 5 | <MDL |

MDL = Method Detection Limit

Analyst's Initials AH Reviewed by

Carol So Chow
Laboratory Director

ATHENA ANALYTICAL LABORATORY, INC.

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

M E M O R A N D U M

DATE: July 28, 1995

TO: John Sherrard, TAT Project Manager, E & E, Chicago, Illinois

FROM: Emily S. Landis, TAT Geochemist, E & E, Cleveland, Ohio

THROUGH: Anne A. Busher, ATATL, E & E, Cleveland, Ohio
David Hendren, TAT Analytical Services Manager, E & E, Chicago, Illinois
Mary J. Ripp, TAT QA Reports Manager, E & E, Chicago, Illinois

SUBJECT: Priority Pollutant List Metals and Toxicity Characteristic Leaching Procedure (TCLP) Lead Data Quality Assurance Review, International Harvester/Dutch Boy, Chicago, Cook County, Illinois

REFERENCE: Project TDD T05-9505-011 Analytical TDD T05-9505-806
Project PAN EIL0607VBA Analytical PAN EIL0607ACA

The data quality assurance (QA) review of 11 discrete soil samples, collected from the International Harvester/Dutch Boy site, is complete. The samples were collected on June 1 and 8, 1995, by the Technical Assistance Team (TAT) contractor, Ecology and Environment, Inc. (E & E). The samples were submitted to Athena Analytical Laboratory, Inc. (AAL), Chicago, Illinois, for analysis. The laboratory analyses were performed according to the United States Environmental Protection Agency (U.S. EPA) Solid Waste (SW)-846 Methods 6010, 7060 (arsenic), 7740 (selenium), and 7471 (mercury) for the determination of Priority Pollutant List metals. Five samples were also subjected to the TCLP, Method 1311, prior to analysis for lead (Method 6010). Results for the soil samples were reported on a dry-weight basis.

Sample Identification

| TAT Identification No. | Laboratory Identification No. |
|---|---|
| S-1 | AA08582 |
| S-2 | AA08583 |
| S-3 | AA08584 |
| S-4 | AA08585 |
| S-5 | AA08586 |
| S-001 | AA08611 |
| S-002 | AA08612 |
| S-003 | AA08613 |
| S-004 | AA08614 |
| S-005 | AA08615 |
| S-006 | AA08616 |

Data Qualifications

I. Sample Holding Times: Acceptable

Samples S-1 through S-5 were digested according to SW-846 Method 3051 on June 13, 1995; Samples S-001 through S-006 were digested on June 19, 1995. The samples were analyzed by inductively coupled plasma spectrometry (ICP), by graphite furnace atomic absorption (GFAA), and cold vapor atomic absorption (CVAA) spectroscopy. The laboratory met the six-month holding time limit for metals.

Samples S-002 through S-006 were extracted following the TCLP on June 30, 1995, and analyzed for lead on July 7, 1995.

GFAA and CVAA analyses were completed by a subcontracted laboratory, American Environmental Analytical, Inc. (AEA), Lincolnwood, Illinois, on June 20, 1995.

II. Initial and Continuing Calibration Verification: Qualified

Calibration standards and blanks were analyzed at the beginning of the analysis and after every 10 samples, as required, for all methods. Samples with results 110 percent or greater than the highest calibration standard were diluted and reanalyzed.

The ICP standard values were within the range of 90 to 110 percent of their mean values. All calibrations associated with the TCLP analyses were also acceptable.

The GFAA initial calibration curve for selenium had a correlation coefficient less than the method-required 0.995. The arsenic initial calibration was acceptable; however, check standard values consistently exceeded the 90 to 110 percent range. Sample values for selenium and arsenic are qualified as estimated values based on inadequate instrument calibration.

The correlation coefficient for the CVAA initial calibration curve was much less than the method requirement of 0.995; therefore, sample results for mercury are also qualified as estimated values.

These analyses were repeated by the laboratory and yielded similar results.

III. Blanks: Acceptable

Method blanks were prepared and analyzed with each sample batch, as required. Percent recovery for silver in the spiked method blank was below the quality control limit. Analyte concentrations were below method detection limits (MDLs) in the ICP calibration and method blanks. Results for GFAA or CVAA blanks were not recorded.

IV. ICP Interference Check Samples: Acceptable

Interference check sample (ICS) results indicated severe spectral interferences for the major beryllium and thallium lines. These elements were quantitated using secondary lines, for which ICS results were acceptable.

V. Analytical Error: Precision and Bias Not Determined

Percent recoveries for silver were low, but no action is required based on the results of one matrix spike sample.

VI. Quantitation and Reported Detection Limits: Acceptable

The reported values and detection limits reflect appropriate dilution factors. Sample results were reported on a dry-weight basis.

VII. Overall Assessment of Data: Qualified

This data evaluation is based on criteria established in the Office of Solid Waste and Emergency Response (OSWER) Directive 9360.4-01, Quality Assurance/Quality Control Guidance for Removal Activities, (1990), and U.S. EPA SW-846 Methods listed above. Based on the data provided, the results may be used with the exceptions noted.

Data Validation Qualifiers

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the required detection limits or quality control criteria were not met.

ATHENA ANALYTICAL LABORATORY, INC.

8609 West Bryn Mawr
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Chicago, Illinois 60631
PHONE 312-693-8030
FAX 312-693-8753

**To:** Ecology and Environment, Inc.
6777 Engle Road
Cleveland, Ohio 44130
Attention: Emily S. Landis

**Report Date:** 06/20/95
**Date Received:** 06/02/95
**Analysis Date:** 06/06/95
**Method:** SW-846 3051/6010
**Matrix:** SOIL
**AAL COC Number:** 001466

**Project Number:** ZT3054
**Project Name:** T05-9505-806
**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (mg/Kg) | Results (mg/Kg) |
|---|---|---|---|
| S-1 | AA08582 | | |
| AREA EAST OF BASKETBALL COURT | | 7.67 | < Stated MDL |
| Antimony | | 0.148 | 10.6 |
| Arsenic * | | 0.256 | 1.43 |
| Beryllium | | 5.11 | < Stated MDL |
| Cadmium | | 5.11 | 35.0 |
| Chromium | | 5.11 | 29.9 |
| Copper | | 6.65 | 122 |
| Lead | | 7.67 | 21.3 |
| Nickel | | 0.148 | 7.53 |
| Selenium * | | | |

Analyst's Initials: CH Reviewed by: AH

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (mg/Kg) | Results (mg/Kg) |
|---|---|---|---|
| S-1 | AA08582 | | |
| AREA EAST OF BASKETBALL COURT | | 1.28 | < Stated MDL |
| Silver | | 7.67 | < Stated MDL |
| Thallium | | 7.67 | 237 |
| Zinc | | 0.001 | 0.055 |
| Mercury * | | | |
| S-2 | AA08583 | | |
| ELEMENTARY SCHOOL | | 6.20 | < Stated MDL |
| Antimony | | 0.106 | 10.6 |
| Arsenic* | | 0.207 | 0.435 |
| Beryllium | | 4.13 | < Stated MDL |
| Cadmium | | 4.13 | 12.5 |
| Chromium | | 4.13 | 11.5 |
| Copper | | 5.37 | 21.3 |
| Lead | | | |

Analyst's Initials: CH Reviewed by: AH

ATHENA ANALYTICAL LABORATORY, INC.

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (mg/Kg) | Results (mg/Kg) |
|---|---|---|---|
| **S-2** | **AA08583** | | |
| ELEMENTARY SCHOOL | | | |
| Nickel | | **6.20** | **S..2** |
| Selenium * | | **0.106** | **6.37** |
| Silver | | **1.03** | **< Stated MDL** |
| Thallium | | **6.20** | **< Stated MDL** |
| Zinc | | **6.20** | **58.2** |
| Mercury * | | **0.001** | **2.52** |
| **S-3** | **AA08584** | | |
| RESIDENTIAL YARD | | | |
| Antimony | | **7.37** | **< Stated MDL** |
| Arsenic * | | **0.129** | **19.1** |
| Beryllium | | **0.246** | **2.24** |
| Cadmium | | **4.92** | **< Stated MDL** |
| Chromium | | **4.92** | **59.8** |

Analyst's Initials: CH Reviewed by: PH

ATHENA ANALYTICAL LABORATORY, INC.

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (mg/Kg) | Results (mg/Kg) |
|---|---|---|---|
| S-3 | AA08584 | | |
| RESIDENTIAL YARD | | | |
| Copper | | 4.92 | 47.1 |
| Lead | | 6.39 | 274 |
| Nickel | | 7.37 | 37.4 |
| Selenium * | | 0.129 | 5.81 |
| Silver | | 1.23 | < Stated MDL |
| Thallium | | 7.37 | < Stated MDL |
| Zinc | | 7.37 | 1 |
| Mercury * | | 0.001 | 0.268 |
| S-4 | AA08585 | | |
| WEST BOUNDARY OF I.H. | | | |
| Antimony | | 5.74 | < Stated MDL |
| Arsenic * | | 0.105 | 22.1 |
| Beryllium | | 0.191 | 2.07 |

Analyst's Initials: CH Reviewed by: JH

ATHENA ANALYTICAL LABORATORY, INC.

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (mg/Kg) | Results (mg/Kg) |
|---|---|---|---|
| **S-4** | **AA08585** | | |
| WEST BOUNDARY OF I.H. | | | |
| | | **3.82** | **< Stated MDL** |
| Cadmium | | | |
| | | **3.82** | **63.4** |
| Chromium | | | |
| | | **3.82** | **82.8** |
| Copper | | | |
| | | **4.97** | **321** |
| Lead | | | |
| | | **5.74** | **34.6** |
| Nickel | | | |
| | | **0.105** | **9.79** |
| Selenium * | | | |
| | | **0.956** | **< Stated MDL** |
| Silver | | | |
| | | **5.74** | **< Stated MDL** |
| Thallium | | | |
| | | **5.74** | **456** |
| Zinc | | | |
| | | **0.001** | **0.099** |
| Mercury * | | | |
| **S-5** | **AA08586** | | |
| NORTH BOUNDARY OF I.H. | | | |

Analyst's Initials: CH Reviewed by: AH

ATHENA ANALYTICAL LABORATORY, INC.

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (mg/Kg) | Results (mg/Kg) |
|---|---|---|---|
| S-5<br>NORTH BOUNDARY OF I.H. | AA08586 | | |
| Antimony | | 6.84 | < Stated MDL |
| Arsenic * | | 0.118 | 15.4 |
| Beryllium | | 0.228 | 1.66 |
| Cadmium | | 4.56 | < Stated MDL |
| Chromium | | 4.56 | 48.6 |
| Copper | | 4.56 | 120 |
| Lead | | 5.93 | 54. |
| Nickel | | 6.84 | 36.9 |
| Selenium * | | 0.118 | 6.75 |
| Silver | | 1.14 | < Stated MDL |
| Thallium | | 6.84 | < Stated MDL |
| Zinc | | 6.84 | 1490 |
| Mercury * | | 0.001 | 0.408 |

Analyst's Initials: CH Reviewed by: -/A

* Arsenic, Selenium and Mercury analyzed by American Environmental Analytical, Inc.

CH for Carol S. Chow

Carol So Chow
Laboratory Director

ATHENA ANALYTICAL LABORATORY, INC.

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-1 | AA08582 | | |
| AREA EAST OF BASKETBALL COURT | | | |
| 2-Chlorotoluene | | 5 | < Stated MDL |
| 4-Chlorotoluene | | 5 | < Stated MDL |
| p-Isopropyltoluene (Cymene) | | 5 | < Stated MDL |
| sec-Butylbenzene | | 5 | < Stated MDL |
| n-Butylbenzene | | 5 | < Stated MDL |
| 1,3-Dichlorobenzene | | 5 | < Stated MDL |
| 1,4-Dichlorobenzene | | 5 | < Stated MDL |
| 1,2-Dichlorobenzene | | 5 | < Stated MDL |
| 1,2-Dibromo-3-chloropropane | | 5 | < Stated MDL |
| 1,2,4-Trichlorobenzene | | 5 | < Stated MDL |
| 1,2,3-Trichlorobenzene | | 5 | < Stated MDL |
| Hexachlorobutadiene | | 5 | < Stated MDL |
| Naphthalene | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by:

Carol So Chow
Laboratory Director

ATHENA ANALYTICAL LABORATORY, INC.

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-1 | AA08582 | | |
| AREA EAST OF BASKETBALL COURT | | | |
| 2-Chlorotoluene | | 5 | < Stated MDL |
| 4-Chlorotoluene | | 5 | < Stated MDL |
| p-Isopropyltoluene (Cymene) | | 5 | < Stated MDL |
| sec-Butylbenzene | | 5 | < Stated MDL |
| n-Butylbenzene | | 5 | < Stated MDL |
| 1,3-Dichlorobenzene | | 5 | < Stated MDL |
| 1,4-Dichlorobenzene | | 5 | < Stated MDL |
| 1,2-Dichlorobenzene | | 5 | < Stated MDL |
| 1,2-Dibromo-3-chloropropane | | 5 | < Stated MDL |
| 1,2,4-Trichlorobenzene | | 5 | < Stated MDL |
| 1,2,3-Trichlorobenzene | | 5 | < Stated MDL |
| Hexachlorobutadiene | | 5 | < Stated MDL |
| Naphthalene | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by:

Carol So Chow
Laboratory Director

ATHENA ANALYTICAL LABORATORY, INC.

ATHENA ANALYTICAL LABORATORY, INC.

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Chicago, Illinois 60631
PHONE 312-693-8030
FAX 312-693-8783

To: Ecology and Environment, Inc.
6777 Engle Road
Cleveland, Ohio 44130
Attention: Emily S. Landis

**Report Date:** 06/19/95
**Date Received:** 06/02/95
**Analysis Date:** 06/06/95
**Method:** SW-846 8260
**Matrix:** SOIL
**AAL COC Number:** 001466

**Project Number:** ZT3054
**Project Name:** T05-9505-806
**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| **S-2** ELEMENTARY SCHOOL | **AA08583** | | |
| Dichlorodifluoromethane | | 5 | < Stated MDL |
| Chloromethane | | 5 | < Stated MDL |
| Vinyl chloride | | 5 | < Stated MDL |
| Bromomethane | | 5 | < Stated MDL |
| Chloroethane | | 5 | < Stated MDL |
| Trichlorofluoromethane | | 5 | < Stated MDL |
| 1,1-Dichloroethene | | 5 | < Stated MDL |
| Carbon disulfide | | 10 | < Stated MDL |
| Methylene chloride | | 5 | < Stated MDL |
| cis-1,2-Dichloroethene | | 5 | < Stated MDL |
| Acetone | | 10 | < Stated MDL |
| 1,1-Dichloroethane | | 5 | < Stated MDL |
| 2-Butanone (MEK) | | 10 | < Stated MDL |
| trans-1,2-Dichlorothene | | 5 | < Stated MDL |
| Bromochloromethane | | 5 | < Stated MDL |
| 1,2-Dichloroethane | | 5 | < Stated MDL |
| 2,2-Dichloropropane | | 5 | < Stated MDL |
| Chloroform | | 5 | < Stated MDL |
| 1,1,1-Trichoroethane | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by:

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-2 ELEMENTARY SCHOOL | AA08583 | | |
| 1,1-Dichloro-1-propene | | 5 | < Stated MDL |
| Carbon tetrachloride | | 5 | < Stated MDL |
| Benzene | | 5 | < Stated MDL |
| Trichloroethene | | 5 | < Stated MDL |
| 1,2-Dichloropropane | | 5 | < Stated MDL |
| Bromdichloromethane | | 5 | < Stated MDL |
| Dibromomethane | | 5 | < Stated MDL |
| trans-1,3-Dichloropropene | | 5 | < Stated MDL |
| 4-Methyl-2-Pentanone (MIBK) | | 10 | < Stated MDL |
| cis-1,3-Dichloropropene | | 5 | < Stated MDL |
| 1,1,2-Trichloroethane | | 5 | < Stated MDL |
| 1,3-Dichloropropane | | 5 | < Stated MDL |
| Chlorodibromomethane | | 5 | < Stated MDL |
| 1,2-Dibromoethane | | 5 | < Stated MDL |
| Toluene | | 5 | < Stated MDL |
| 2-Hexanone | | 10 | < Stated MDL |
| Tetrachloroethene | | 5 | < Stated MDL |
| Chlorobenzene | | 5 | < Stated MDL |
| Ethylbenzene | | 5 | < Stated MDL |
| 1,1,1,2-Tetrachloroethane | | 5 | < Stated MDL |
| m,p,-Xylenes | | 5 | < Stated MDL |
| o-Xylene | | 5 | < Stated MDL |
| Styrene | | 5 | < Stated MDL |
| Bromoform | | 5 | < Stated MDL |
| 1,1,2,2-Tetrachloroethane | | 5 | < Stated MDL |
| 1,3,5-Trimethylbenzene | | 5 | < Stated MDL |
| Isopropylbenzene (Cumene) | | 5 | < Stated MDL |
| 1,2,4-Trimethylbenzene | | 5 | < Stated MDL |
| 1,2,3-Trichloropropane | | 5 | < Stated MDL |
| Propylbenzene | | 5 | < Stated MDL |
| Bromobenzene | | 5 | < Stated MDL |
| tert-Butylbenzene | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by:

ATHENA ANALYTICAL LABORATORY, INC.

ATHENA ANALYTICAL LABORATORY, INC.

8609 West Bryn Mawr
Suite 201
Chicago, Illinois 60631
PHONE 312-693-8030
FAX 312-693-8783

To: Ecology and Environment, Inc.
6777 Engle Road
Cleveland, Ohio 44130
Attention: Emily S. Landis

**Report Date:** 06/19/95
**Date Received:** 06/02/95
**Analysis Date:** 06/06/95
**Method:** SW-846 8260
**Matrix:** SOIL
**AAL COC Number:** 001466

**Project Number:** ZT3054
**Project Name:** T05-9505-806
**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-3 RESIDENTIAL YARD | AA08584 | | |
| Dichlorodifluoromethane | | 5 | < Stated MDL |
| Chloromethane | | 5 | < Stated MDL |
| Vinyl chloride | | 5 | < Stated MDL |
| Bromomethane | | 5 | < Stated MDL |
| Chloroethane | | 5 | < Stated MDL |
| Trichlorofluoromethane | | 5 | < Stated MDL |
| 1,1-Dichloroethene | | 5 | < Stated MDL |
| Carbon disulfide | | 10 | < Stated MDL |
| Methylene chloride | | 5 | < Stated MDL |
| cis-1,2-Dichloroethene | | 5 | < Stated MDL |
| Acetone | | 10 | < Stated MDL |
| 1,1-Dichloroethane | | 5 | < Stated MDL |
| 2-Butanone (MEK) | | 10 | < Stated MDL |
| trans-1,2-Dichlorothene | | 5 | < Stated MDL |
| Bromochloromethane | | 5 | < Stated MDL |
| 1,2-Dichloroethane | | 5 | < Stated MDL |
| 2,2-Dichloropropane | | 5 | < Stated MDL |
| Chloroform | | 5 | < Stated MDL |
| 1,1,1-Trichoroethane | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by: _____

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-3 | AA08584 | | |
| RESIDENTIAL YARD | | | |
| 1,1-Dichloro-1-propene | | 5 | < Stated MDL |
| Carbon tetrachloride | | 5 | < Stated MDL |
| Benzene | | 5 | < Stated MDL |
| Trichloroethene | | 5 | < Stated MDL |
| 1,2-Dichloropropane | | 5 | < Stated MDL |
| Bromdichloromethane | | 5 | < Stated MDL |
| Dibromomethane | | 5 | < Stated MDL |
| trans-1,3-Dichloropropene | | 5 | < Stated MDL |
| 4-Methyl-2-Pentanone (MIBK) | | 10 | < Stated MDL |
| cis-1,3-Dichloropropene | | 5 | < Stated MDL |
| 1,1,2-Trichloroethane | | 5 | < Stated MDL |
| 1,3-Dichloropropane | | 5 | < Stated MDL |
| Chlorodibromomethane | | 5 | < Stated MDL |
| 1,2-Dibromoethane | | 5 | < Stated MDL |
| Toluene | | 5 | < Stated MDL |
| 2-Hexanone | | 10 | < Stated MDL |
| Tetrachloroethene | | 5 | < Stated MDL |
| Chlorobenzene | | 5 | < Stated MDL |
| Ethylbenzene | | 5 | < Stated MDL |
| 1,1,1,2-Tetrachloroethane | | 5 | < Stated MDL |
| m,p,-Xylenes | | 5 | < Stated MDL |
| o-Xylene | | 5 | < Stated MDL |
| Styrene | | 5 | < Stated MDL |
| Bromoform | | 5 | < Stated MDL |
| 1,1,2,2-Tetrachloroethane | | 5 | < Stated MDL |
| 1,3,5-Trimethylbenzene | | 5 | < Stated MDL |
| Isopropylbenzene (Cumene) | | 5 | < Stated MDL |
| 1,2,4-Trimethylbenzene | | 5 | < Stated MDL |
| 1,2,3-Trichloropropane | | 5 | < Stated MDL |
| Propylbenzene | | 5 | < Stated MDL |
| Bromobenzene | | 5 | < Stated MDL |
| tert-Butylbenzene | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by: _____

ATHENA ANALYTICAL LABORATORY, INC.

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-3 | AA08584 | | |
| RESIDENTIAL YARD | | | |
| 2-Chlorotoluene | | 5 | < Stated MDL |
| 4-Chlorotoluene | | 5 | < Stated MDL |
| p-Isopropyltoluene (Cymene) | | 5 | < Stated MDL |
| sec-Butylbenzene | | 5 | < Stated MDL |
| n-Butylbenzene | | 5 | < Stated MDL |
| 1,3-Dichlorobenzene | | 5 | < Stated MDL |
| 1,4-Dichlorobenzene | | 5 | < Stated MDL |
| 1,2-Dichlorobenzene | | 5 | < Stated MDL |
| 1,2-Dibromo-3-chloropropane | | 5 | < Stated MDL |
| 1,2,4-Trichlorobenzene | | 5 | < Stated MDL |
| 1,2,3-Trichlorobenzene | | 5 | < Stated MDL |
| Hexachlorobutadiene | | 5 | < Stated MDL |
| Naphthalene | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by: ch

Carol So Chow
Laboratory Director

ATHENA ANALYTICAL LABORATORY, INC.

ATHENA ANALYTICAL LABORATORY, INC.

8609 West Bryn Mawr
Suite 201
Chicago, Illinois 60631
PHONE 312-693-6030
FAX 312-693-5783

To: Ecology and Environment, Inc.
6777 Engle Road
Cleveland, Ohio 44130
Attention: Emily S. Landis

**Report Date:** 06/19/95
**Date Received:** 06/02/95
**Analysis Date:** 06/06/95
**Method:** SW-846 8260
**Matrix:** SOIL
**AAL COC Number:** 001466

**Project Number:** ZT3054
**Project Name:** T05-9505-806
**P.O. Number:** N/A

all compound MDL's flagged due to dilutions

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| **S-4** WEST BOUNDARY OF I.H. | **AA08585** | | |
| Dichlorodifluoromethane | | 5 | < Stated MDL |
| Chloromethane | | 5 | < Stated MDL |
| Vinyl chloride | | 5 | < Stated MDL |
| Bromomethane | | 5 | < Stated MDL |
| Chloroethane | | 5 | < Stated MDL |
| Trichlorofluoromethane | | 5 | < Stated MDL |
| 1,1-Dichloroethene | | 5 | < Stated MDL |
| Carbon disulfide | | 10 | < Stated MDL |
| Methylene chloride | | 5 | < Stated MDL |
| cis-1,2-Dichloroethene | | 5 | < Stated MDL |
| Acetone | | 10 | < Stated MDL |
| 1,1-Dichloroethane | | 5 | < Stated MDL |
| 2-Butanone (MEK) | | 10 | < Stated MDL |
| trans-1,2-Dichlorothene | | 5 | < Stated MDL |
| Bromochloromethane | | 5 | < Stated MDL |
| 1,2-Dichloroethane | | 5 | < Stated MDL |
| 2,2-Dichloropropane | | 5 | < Stated MDL |
| Chloroform | | 5 | < Stated MDL |
| 1,1,1-Trichoroethane | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by: _____

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

all compounds MDL's Reported 8/12/95

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-4 WEST BOUNDARY OF I.H. | AA08585 | | |
| 1,1-Dichloro-1-propene | | 5 | < Stated MDL |
| Carbon tetrachloride | | 5 | < Stated MDL |
| Benzene | | 5 | < Stated MDL |
| Trichloroethene | | 5 | < Stated MDL |
| 1,2-Dichloropropane | | 5 | < Stated MDL |
| Bromdichloromethane | | 5 | < Stated MDL |
| Dibromomethane | | 5 | < Stated MDL |
| trans-1,3-Dichloropropene | | 5 | < Stated MDL |
| 4-Methyl-2-Pentanone (MIBK) | | 10 | < Stated MDL |
| cis-1,3-Dichloropropene | | 5 | < Stated MDL |
| 1,1,2-Trichloroethane | | 5 | < Stated MDL |
| 1,3-Dichloropropane | | 5 | < Stated MDL |
| Chlorodibromomethane | | 5 | < Stated MDL |
| 1,2-Dibromoethane | | 5 | < Stated MDL |
| Toluene | | 5 | < Stated MDL |
| 2-Hexanone | | 10 | < Stated MDL |
| Tetrachloroethene | | 5 | < Stated MDL |
| Chlorobenzene | | 5 | < Stated MDL |
| Ethylbenzene | | 5 | < Stated MDL |
| 1,1,1,2-Tetrachloroethane | | 5 | < Stated MDL |
| m,p,-Xylenes | | 5 | < Stated MDL |
| o-Xylene | | 5 | < Stated MDL |
| Styrene | | 5 | < Stated MDL |
| Bromoform | | 5 | < Stated MDL |
| 1,1,2,2-Tetrachloroethane | | 5 | < Stated MDL |
| 1,3,5-Trimethylbenzene | | 5 | < Stated MDL |
| Isopropylbenzene (Cumene) | | 5 | < Stated MDL |
| 1,2,4-Trimethylbenzene | | 5 | < Stated MDL |
| 1,2,3-Trichloropropane | | 5 | < Stated MDL |
| Propylbenzene | | 5 | < Stated MDL |
| Bromobenzene | | 5 | < Stated MDL |
| tert-Butylbenzene | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by:

ATHENA ANALYTICAL LABORATORY, INC.

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

all compound MDLs flagged per 8.2.95

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-4 WEST BOUNDARY OF I.H. | AA08585 | | |
| 2-Chlorotoluene | | 5 | < Stated MDL |
| 4-Chlorotoluene | | 5 | < Stated MDL |
| p-Isopropyltoluene (Cymene) | | 5 | < Stated MDL |
| sec-Butylbenzene | | 5 | < Stated MDL |
| n-Butylbenzene | | 5 | < Stated MDL |
| 1,3-Dichlorobenzene | | 5 | < Stated MDL |
| 1,4-Dichlorobenzene | | 5 | < Stated MDL |
| 1,2-Dichlorobenzene | | 5 | < Stated MDL |
| 1,2-Dibromo-3-chloropropane | | 5 | < Stated MDL |
| 1,2,4-Trichlorobenzene | | 5 | < Stated MDL |
| 1,2,3-Trichlorobenzene | | 5 | < Stated MDL |
| Hexachlorobutadiene | | 5 | < Stated MDL |
| Naphthalene | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by: ch

Carol So Chow
Laboratory Director

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PHONE 312-693-8030
FAX 312-693-8783

To: Ecology and Environment, Inc.
6777 Engle Road
Cleveland, Ohio 44130
Attention: Emily S. Landis

**Report Date:** 06/19/95
**Date Received:** 06/02/95
**Analysis Date:** 06/06/95
**Method:** SW-846 8260
**Matrix:** SOIL
**AAL COC Number:** 001466

**Project Number:** ZT3054
**Project Name:** T05-9505-806
**P.O. Number:** N/A

all MDLs flagged per ecl 8.2.95

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-5 NORTH BOUNDARY OF I.H. | AA08586 | | |
| Dichlorodifluoromethane | | 5 | < Stated MDL |
| Chloromethane | | 5 | < Stated MDL |
| Vinyl chloride | | 5 | < Stated MDL |
| Bromomethane | | 5 | < Stated MDL |
| Chloroethane | | 5 | < Stated MDL |
| Trichlorofluoromethane | | 5 | < Stated MDL |
| 1,1-Dichloroethene | | 5 | < Stated MDL |
| Carbon disulfide | | 10 | < Stated MDL |
| Methylene chloride | | 5 | < Stated MDL |
| cis-1,2-Dichloroethene | | 5 | < Stated MDL |
| Acetone | | 10 | < Stated MDL |
| 1,1-Dichloroethane | | 5 | < Stated MDL |
| 2-Butanone (MEK) | | 10 | < Stated MDL |
| trans-1,2-Dichlorothene | | 5 | < Stated MDL |
| Bromochloromethane | | 5 | < Stated MDL |
| 1,2-Dichloroethane | | 5 | < Stated MDL |
| 2,2-Dichloropropane | | 5 | < Stated MDL |
| Chloroform | | 5 | < Stated MDL |
| 1,1,1-Trichoroethane | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by:

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

all MDLs flagged per 8/17/95

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-5 | AA08586 | | |
| NORTH BOUNDARY OF I.H. | | | |
| 1,1-Dichloro-1-propene | | 5 | < Stated MDL |
| Carbon tetrachloride | | 5 | < Stated MDL |
| Benzene | | 5 | < Stated MDL |
| Trichloroethene | | 5 | < Stated MDL |
| 1,2-Dichloropropane | | 5 | < Stated MDL |
| Bromdichloromethane | | 5 | < Stated MDL |
| Dibromomethane | | 5 | < Stated MDL |
| trans-1,3-Dichloropropene | | 5 | < Stated MDL |
| 4-Methyl-2-Pentanone (MIBK) | | 10 | < Stated MDL |
| cis-1,3-Dichloropropene | | 5 | < Stated MDL |
| 1,1,2-Trichloroethane | | 5 | < Stated MDL |
| 1,3-Dichloropropane | | 5 | < Stated MDL |
| Chlorodibromomethane | | 5 | < Stated MDL |
| 1,2-Dibromoethane | | 5 | < Stated MDL |
| Toluene | | 5 | < Stated MDL |
| 2-Hexanone | | 10 | < Stated MDL |
| Tetrachloroethene | | 5 | < Stated MDL |
| Chlorobenzene | | 5 | < Stated MDL |
| Ethylbenzene | | 5 | < Stated MDL |
| 1,1,1,2-Tetrachloroethane | | 5 | < Stated MDL |
| m,p,-Xylenes | | 5 | < Stated MDL |
| o-Xylene | | 5 | < Stated MDL |
| Styrene | | 5 | < Stated MDL |
| Bromoform | | 5 | < Stated MDL |
| 1,1,2,2-Tetrachloroethane | | 5 | < Stated MDL |
| 1,3,5-Trimethylbenzene | | 5 | < Stated MDL |
| Isopropylbenzene (Cumene) | | 5 | < Stated MDL |
| 1,2,4-Trimethylbenzene | | 5 | < Stated MDL |
| 1,2,3-Trichloropropane | | 5 | < Stated MDL |
| Propylbenzene | | 5 | < Stated MDL |
| Bromobenzene | | 5 | < Stated MDL |
| tert-Butylbenzene | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by: JL

ATHENA ANALYTICAL LABORATORY, INC.

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

all MDLs flagged per 8.D.95

| Customer Number | AAL Number | MDL's (ug/Kg) | Results (ug/Kg) |
|---|---|---|---|
| S-5 NORTH BOUNDARY OF I.H. | AA08586 | | |
| 2-Chlorotoluene | | 5 | < Stated MDL |
| 4-Chlorotoluene | | 5 | < Stated MDL |
| p-Isopropyltoluene (Cymene) | | 5 | < Stated MDL |
| sec-Butylbenzene | | 5 | < Stated MDL |
| n-Butylbenzene | | 5 | < Stated MDL |
| 1,3-Dichlorobenzene | | 5 | < Stated MDL |
| 1,4-Dichlorobenzene | | 5 | < Stated MDL |
| 1,2-Dichlorobenzene | | 5 | < Stated MDL |
| 1,2-Dibromo-3-chloropropane | | 5 | < Stated MDL |
| 1,2,4-Trichlorobenzene | | 5 | < Stated MDL |
| 1,2,3-Trichlorobenzene | | 5 | < Stated MDL |
| Hexachlorobutadiene | | 5 | < Stated MDL |
| Naphthalene | | 5 | < Stated MDL |

Analyst's Initials: AH Reviewed by: cs

Carol So Chow
Laboratory Director

ATHENA ANALYTICAL LABORATORY, INC.

ATHENA ANALYTICAL LABORATORY, INC.

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Suite 201
Chicago, Illinois 60631
PHONE 312-693-8030
FAX 312-693-8783

**To:** Ecology & Environment
6777 Engle Road
Cleveland OH 44130
Attn: Emily Landis

**Report Date:** 06/16/95
**Date Received:** 06/02/95
**Analysis Date:** 06/07/95
**Method:** 8260
**Matrix:** Soil

**Project Number:** ZT3054
**Project Name:** T05-9505-806
**P.O. Number:** n/a
AAL Sample No: AA08585re
Client Sample No: S - 4

AAL COC NUMBER: 01466

| Analyte | MDL (ug/L) | Results (ug/L) |
|---|---|---|
| Dichlorodifluoromethane | 5 | <MDL |
| Chloromethane | 5 | <MDL |
| Vinyl Chloride | 5 | <MDL |
| Bromomethane | 5 | <MDL |
| Chloroethane | 5 | <MDL |
| Trichlorofluoromethane | 5 | <MDL |
| 1,1-Dichloroethene | 5 | <MDL |
| Carbon Disulfide | 10 | <MDL |
| Methylene Chloride | 5 | <MDL |
| cis-1,2-Dichloroethene | 5 | <MDL |
| 1,1-Dichloroethane | 5 | <MDL |
| Acetone | 10 | <MDL |
| trans-1,2-Dichloroethene | 5 | <MDL |
| 2,2-Dichloropropane | 5 | <MDL |
| 2-Butanone(MEK) | 10 | <MDL |
| Bromochloromethane | 5 | <MDL |
| Chloroform | 5 | <MDL |
| 1,1,1-Trichloroethane | 5 | <MDL |
| 1,1-Dichloro-1-Propene | 5 | <MDL |
| Carbon Tetrachloride | 5 | <MDL |
| 1,2-Dichloroethane | 5 | <MDL |
| Benzene | 5 | <MDL |
| Trichloroethene | 5 | <MDL |
| 1,2-Dichloropropane | 5 | <MDL |
| Dibromomethane | 5 | <MDL |
| Bromodichloromethane | 5 | <MDL |
| trans-1,3-Dichloropropene | 5 | <MDL |
| 4-Methyl-2-Pentanone(MIBK) | 10 | <MDL |
| cis-1,3-Dichloropropane | 5 | <MDL |
| 1,1,2 - Trichloroethane | 5 | <MDL |

**Project Number**: ZT3054
**Project Name**: T05-9505-806 AAL COC NUMBER: 01466
**P.O. Number:** n/a
AAL Sample No: AA08585re
Client Sample No: . S - 4

| Analyte | MDL (ug/L) | Results (ug/L) |
|---|---|---|
| 1,3-Dichloropropane | 5 | <MDL |
| Chlorodibromomethane | 5 | <MDL |
| 1,2-dibromomethane | 5 | <MDL |
| Chlorobenzene | 5 | <MDL |
| 1,1,1,2 Tetrachlorethane | 5 | <MDL |
| Toluene | 5 | <MDL |
| Tetrachloroethene | 5 | <MDL |
| 2-Hexanone | 10 | <MDL |
| Ethylbenzene | 5 | <MDL |
| m,p-Xylenes | 5 | <MDL |
| o-Xylene | 5 | <MDL |
| Styrene | 5 | <MDL |
| Bromoform | 5 | <MDL |
| Isopropylbenzene (Cumene) | 5 | <MDL |
| 1,1,2,2-Tetrachloroethane | 5 | <MDL |
| 1,2,3-Trichloropropane | 5 | <MDL |
| Propylbenzene | 5 | <MDL |
| Bromobenzene | 5 | <MDL |
| 1,3,5-Trimethylbenzene | 5 | <MDL |
| 2-Chlorotoluene | 5 | <MDL |
| 4-Chlorotoluene | 5 | <MDL |
| tert-Butylbenzene | 5 | <MDL |
| 1,2,4-Trimethylbenzene | 5 | <MDL |
| sec-Butylbenzene | 5 | <MDL |
| p-Isopropyltoluene (Cymene) | 5 | <MDL |
| 1,3-Dichlorobenzene | 5 | <MDL |
| 1,4-Dichlorobenzene | 5 | <MDL |
| n-Butylbenzene | 5 | <MDL |
| 1,2-Dichlorobenzene | 5 | <MDL |
| 1,2-Dibromo-3-Chloropropane(DBCP) | 5 | <MDL |
| 1,2,4-Trichlorobenzene | 5 | <MDL |
| Hexachlorobutadiene | 5 | <MDL |
| Naphthalene | 5 | <MDL |
| 1,2,3-Trichlorobenzene | 5 | <MDL |

MDL = Method Detection Limit

Analyst's Initials AH Reviewed by ch

Carol So Chow
Laboratory Director

ATHENA ANALYTICAL LABORATORY, INC.

ATHENA ANALYTICAL LABORATORY, INC.

Suite 201
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To: Ecology & Environment
6777 Engle Road
Cleveland, OH 44130
Attn: Emily Landis

**Report Date**: 06/16/95
**Date Received**: 06/02/95
**Analysis Date**: 06/07/95
**Method**: 8260
**Matrix**: **Soil**

**Project Number**: ZT3054
**Project Name**: T05-9505-806
**P.O. Number**: n/a
AAL Sample No: AA08586re
Client Sample No: S - 5

AAL COC NUMBER: 01466

| Analyte | MDL (ug/L) | Results (ug/L) |
|---|---|---|
| Dichlorodifluoromethane | 5 | <MDL |
| Chloromethane | 5 | <MDL |
| Vinyl Chloride | 5 | <MDL |
| Bromomethane | 5 | <MDL |
| Chloroethane | 5 | <MDL |
| Trichlorofluoromethane | 5 | <MDL |
| 1,1-Dichloroethene | 5 | <MDL |
| Carbon Disulfide | 10 | <MDL |
| Methylene Chloride | 5 | <MDL |
| cis-1,2-Dichloroethene | 5 | <MDL |
| 1,1-Dichloroethane | 5 | <MDL |
| Acetone | 10 | <MDL |
| trans-1,2-Dichloroethene | 5 | <MDL |
| 2,2-Dichloropropane | 5 | <MDL |
| 2-Butanone(MEK) | 10 | <MDL |
| Bromochloromethane | 5 | <MDL |
| Chloroform | 5 | <MDL |
| 1,1,1-Trichloroethane | 5 | <MDL |
| 1,1-Dichloro-1-Propene | 5 | <MDL |
| Carbon Tetrachloride | 5 | <MDL |
| 1,2-Dichloroethane | 5 | <MDL |
| Benzene | 5 | <MDL |
| Trichloroethene | 5 | <MDL |
| 1,2-Dichloropropane | 5 | <MDL |
| Dibromomethane | 5 | <MDL |
| Bromodichloromethane | 5 | <MDL |
| trans-1,3-Dichloropropene | 5 | <MDL |
| 4-Methyl-2-Pentanone(MIBK) | 10 | <MDL |
| cis-1,3-Dichloropropane | 5 | <MDL |
| 1,1,2 - Trichloroethane | 5 | <MDL |

**Project Number**: ZT3054
**Project Name**: T05-9505-806
**P.O. Number**: n/a
AAL Sample No: AA08586re
Client Sample No: S - 5

AAL COC NUMBER: 01466

| Analyte | MDL (ug/L) | Results (ug/L) |
|---|---|---|
| 1,3-Dichloropropane | 5 | <MDL |
| Chlorodibromomethane | 5 | <MDL |
| 1,2-dibromomethane | 5 | <MDL |
| Chlorobenzene | 5 | <MDL |
| 1,1,1,2 Tetrachlorethane | 5 | <MDL |
| Toluene | 5 | <MDL |
| Tetrachloroethene | 5 | <MDL |
| 2-Hexanone | 10 | <MDL |
| Ethylbenzene | 5 | <MDL |
| m,p-Xylenes | 5 | <MDL |
| o-Xylene | 5 | <MDL |
| Styrene | 5 | <MDL |
| Bromoform | 5 | <MDL |
| Isopropylbenzene (Cumene) | 5 | <MDL |
| 1,1,2,2-Tetrachloroethane | 5 | <MDL |
| 1,2,3-Trichloropropane | 5 | <MDL |
| Propylbenzene | 5 | <MDL |
| Bromobenzene | 5 | <MDL |
| 1,3,5-Trimethylbenzene | 5 | <MDL |
| 2-Chlorotoluene | 5 | <MDL |
| 4-Chlorotoluene | 5 | <MDL |
| tert-Butylbenzene | 5 | <MDL |
| 1,2,4-Trimethylbenzene | 5 | <MDL |
| sec-Butylbenzene | 5 | <MDL |
| p-Isopropyltoluene (Cymene) | 5 | <MDL |
| 1,3-Dichlorobenzene | 5 | <MDL |
| 1,4-Dichlorobenzene | 5 | <MDL |
| n-Butylbenzene | 5 | <MDL |
| 1,2-Dichlorobenzene | 5 | <MDL |
| 1,2-Dibromo-3-Chloropropane(DBCP) | 5 | <MDL |
| 1,2,4-Trichlorobenzene | 5 | <MDL |
| Hexachlorobutadiene | 5 | <MDL |
| Naphthalene | 5 | <MDL |
| 1,2,3-Trichlorobenzene | 5 | <MDL |

MDL = Method Detection Limit

Analyst's Initials AH Reviewed by

Carol So Chow
Laboratory Director

ATHENA ANALYTICAL LABORATORY, INC.

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

M E M O R A N D U M

DATE: July 28, 1995

TO: John Sherrard, TAT Project Manager, E & E, Chicago, Illinois

FROM: Emily S. Landis, TAT Geochemist, E & E, Cleveland, Ohio

THROUGH: Anne A. Busher, ATATL, E & E, Cleveland, Ohio
David Hendren, TAT Analytical Services Manager, E & E, Chicago, Illinois
Mary J. Ripp, TAT QA Reports Manager, E & E, Chicago, Illinois

SUBJECT: Priority Pollutant List Metals and Toxicity Characteristic Leaching Procedure (TCLP) Lead Data Quality Assurance Review, International Harvester/Dutch Boy, Chicago, Cook County, Illinois

REFERENCE: Project TDD T05-9505-011 Analytical TDD T05-9505-806
Project PAN EIL0607VBA Analytical PAN EIL0607ACA

The data quality assurance (QA) review of 11 discrete soil samples, collected from the International Harvester/Dutch Boy site, is complete. The samples were collected on June 1 and 8, 1995, by the Technical Assistance Team (TAT) contractor, Ecology and Environment, Inc. (E & E). The samples were submitted to Athena Analytical Laboratory, Inc. (AAL), Chicago, Illinois, for analysis. The laboratory analyses were performed according to the United States Environmental Protection Agency (U.S. EPA) Solid Waste (SW)-846 Methods 6010, 7060 (arsenic), 7740 (selenium), and 7471 (mercury) for the determination of Priority Pollutant List metals. Five samples were also subjected to the TCLP, Method 1311, prior to analysis for lead (Method 6010). Results for the soil samples were reported on a dry-weight basis.

Sample Identification

| TAT Identification No. | Laboratory Identification No. |
|---|---|
| S-1 | AA08582 |
| S-2 | AA08583 |
| S-3 | AA08584 |
| S-4 | AA08585 |
| S-5 | AA08586 |
| S-001 | AA08611 |
| S-002 | AA08612 |
| S-003 | AA08613 |
| S-004 | AA08614 |
| S-005 | AA08615 |
| S-006 | AA08616 |

Data Qualifications

I. Sample Holding Times: Acceptable

Samples S-1 through S-5 were digested according to SW-846 Method 3051 on June 13, 1995; Samples S-001 through S-006 were digested on June 19, 1995. The samples were analyzed by inductively coupled plasma spectrometry (ICP), by graphite furnace atomic absorption (GFAA), and cold vapor atomic absorption (CVAA) spectroscopy. The laboratory met the six-month holding time limit for metals.

Samples S-002 through S-006 were extracted following the TCLP on June 30, 1995, and analyzed for lead on July 7, 1995.

GFAA and CVAA analyses were completed by a subcontracted laboratory, American Environmental Analytical, Inc. (AEA), Lincolnwood, Illinois, on June 20, 1995.

II. Initial and Continuing Calibration Verification: Qualified

Calibration standards and blanks were analyzed at the beginning of the analysis and after every 10 samples, as required, for all methods. Samples with results 110 percent or greater than the highest calibration standard were diluted and reanalyzed.

The ICP standard values were within the range of 90 to 110 percent of their mean values. All calibrations associated with the TCLP analyses were also acceptable.

The GFAA initial calibration curve for selenium had a correlation coefficient less than the method-required 0.995. The arsenic initial calibration was acceptable; however, check standard values consistently exceeded the 90 to 110 percent range. Sample values for selenium and arsenic are qualified as estimated values based on inadequate instrument calibration.

The correlation coefficient for the CVAA initial calibration curve was much less than the method requirement of 0.995; therefore, sample results for mercury are also qualified as estimated values.

These analyses were repeated by the laboratory and yielded similar results.

III. Blanks: Acceptable

Method blanks were prepared and analyzed with each sample batch, as required. Percent recovery for silver in the spiked method blank was below the quality control limit. Analyte concentrations were below method detection limits (MDLs) in the ICP calibration and method blanks. Results for GFAA or CVAA blanks were not recorded.

IV. ICP Interference Check Samples: Acceptable

Interference check sample (ICS) results indicated severe spectral interferences for the major beryllium and thallium lines. These elements were quantitated using secondary lines, for which ICS results were acceptable.

V. Analytical Error: Precision and Bias Not Determined

Percent recoveries for silver were low, but no action is required based on the results of one matrix spike sample.

VI. Quantitation and Reported Detection Limits: Acceptable

The reported values and detection limits reflect appropriate dilution factors. Sample results were reported on a dry-weight basis.

VII. Overall Assessment of Data: Qualified

This data evaluation is based on criteria established in the Office of Solid Waste and Emergency Response (OSWER) Directive 9360.4-01, Quality Assurance/Quality Control Guidance for Removal Activities, (1990), and U.S. EPA SW-846 Methods listed above. Based on the data provided, the results may be used with the exceptions noted.

Data Validation Qualifiers

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the required detection limits or quality control criteria were not met.

ATHENA ANALYTICAL LABORATORY, INC.

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PHONE 312-693-8030
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To: Ecology and Environment, Inc.
6777 Engle Road
Cleveland, Ohio 44130
Attention: Emily S. Landis

**Report Date:** 06/20/95
**Date Received:** 06/02/95
**Analysis Date:** 06/06/95
**Method:** SW-846 3051/6010
**Matrix:** SOIL
**AAL COC Number:** 001466

**Project Number:** ZT3054
**Project Name:** T05-9505-806
**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (mg/Kg) | Results (mg/Kg) |
|---|---|---|---|
| **S-1** | **AA08582** | | |
| AREA EAST OF BASKETBALL COURT | | | |
| Antimony | | **7.67** | **< Stated MDL** |
| Arsenic * | | **0.148** | **10.6** |
| Beryllium | | **0.256** | **1.43** |
| Cadmium | | **5.11** | **< Stated MDL** |
| Chromium | | **5.11** | **35.0** |
| Copper | | **5.11** | **29.9** |
| Lead | | **6.65** | **122** |
| Nickel | | **7.67** | **21.3** |
| Selenium * | | **0.148** | **7.53** |

Analyst's Initials: CH Reviewed by: [illegible]

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (mg/Kg) | Results (mg/Kg) |
|---|---|---|---|
| S-1 | AA08582 | | |
| AREA EAST OF BASKETBALL COURT | | | |
| Silver | | 1.28 | < Stated MDL |
| Thallium | | 7.67 | < Stated MDL |
| Zinc | | 7.67 | 237 |
| Mercury * | | 0.001 | 0.055 |
| S-2 | AA08583 | | |
| ELEMENTARY SCHOOL | | | |
| Antimony | | 6.20 | < Stated MDL |
| Arsenic* | | 0.106 | 10.6 |
| Beryllium | | 0.207 | 0.435 |
| Cadmium | | 4.13 | < Stated MDL |
| Chromium | | 4.13 | 12.5 |
| Copper | | 4.13 | 11.5 |
| Lead | | 5.37 | 21.3 |

Analyst's Initials: CH Reviewed by: AH

ATHENA ANALYTICAL LABORATORY, INC.

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (mg/Kg) | Results (mg/Kg) |
|---|---|---|---|
| **S-2** ELEMENTARY SCHOOL | **AA08583** | | |
| Nickel | | **6.20** | **5.22** |
| Selenium * | | **0.106** | **6.37** |
| Silver | | **1.03** | **< Stated MDL** |
| Thallium | | **6.20** | **< Stated MDL** |
| Zinc | | **6.20** | **58.2** |
| Mercury * | | **0.001** | **2.52** |
| **S-3** RESIDENTIAL YARD | **AA08584** | | |
| Antimony | | **7.37** | **< Stated MDL** |
| Arsenic * | | **0.129** | **19.1** |
| Beryllium | | **0.246** | **2.24** |
| Cadmium | | **4.92** | **< Stated MDL** |
| Chromium | | **4.92** | **59.8** |

Analyst's Initials: CH Reviewed by: PH

ATHENA ANALYTICAL LABORATORY, INC.

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (mg/Kg) | Results (mg/Kg) |
|---|---|---|---|
| S-3<br>RESIDENTIAL YARD | AA08584 | | |
| Copper | | 4.92 | 47.1 |
| Lead | | 6.39 | 274 |
| Nickel | | 7.37 | 37.4 |
| Selenium * | | 0.129 | 5.81 |
| Silver | | 1.23 | < Stated MDL |
| Thallium | | 7.37 | < Stated MDL |
| Zinc | | 7.37 | 1 |
| Mercury * | | 0.001 | 0.268 |
| S-4<br>WEST BOUNDARY OF I.H. | AA08585 | | |
| Antimony | | 5.74 | < Stated MDL |
| Arsenic * | | 0.105 | 22.1 |
| Beryllium | | 0.191 | 2.07 |

Analyst's Initials: CH Reviewed by: JH

ATHENA ANALYTICAL LABORATORY, INC.

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (mg/Kg) | Results (mg/Kg) |
|---|---|---|---|
| S-5<br>NORTH BOUNDARY OF I.H. | AA08586 | | |
| Antimony | | 6.84 | < Stated MDL |
| Arsenic * | | 0.118 | 15.4 |
| Beryllium | | 0.228 | 1.66 |
| Cadmium | | 4.56 | < Stated MDL |
| Chromium | | 4.56 | 48.6 |
| Copper | | 4.56 | 120 |
| Lead | | 5.93 | 54. |
| Nickel | | 6.84 | 36.9 |
| Selenium * | | 0.118 | 6.75 |
| Silver | | 1.14 | < Stated MDL |
| Thallium | | 6.84 | < Stated MDL |
| Zinc | | 6.84 | 1490 |
| Mercury * | | 0.001 | 0.408 |

Analyst's Initials: CM Reviewed by: -/A

* Arsenic, Selenium and Mercury analyzed by American Environmental Analytical, Inc.

CM for Carol S. Chow

Carol So Chow
Laboratory Director

ATHENA ANALYTICAL LABORATORY, INC.

AAL COC Number: 001466

**Project Number:** ZT3054

**Project Name:** T05-9505-806

**P.O. Number:** N/A

| Customer Number | AAL Number | MDL's (mg/Kg) | Results (mg/Kg) |
|---|---|---|---|
| S-4<br>WEST BOUNDARY OF I.H. | AA08585 | | |
| Cadmium | | 3.82 | < Stated MDL |
| Chromium | | 3.82 | 63.4 |
| Copper | | 3.82 | 82.8 |
| Lead | | 4.97 | 321 |
| Nickel | | 5.74 | 34.6 |
| Selenium * | | 0.105 | 9.79 |
| Silver | | 0.956 | < Stated MDL |
| Thallium | | 5.74 | < Stated MDL |
| Zinc | | 5.74 | 456 |
| Mercury * | | 0.001 | 0.099 |
| S-5<br>NORTH BOUNDARY OF I.H. | AA08586 | | |

Analyst's Initials: CH Reviewed by: [illegible]

ATHENA ANALYTICAL LABORATORY, INC.